IN THE

District Court of the United States

FOR THE NORTHERN DISTRICT OF ILLINOIS,

EASTERN DIVISION.

UNITED STATES OF AMERICA, *vs.* ECONOMY LIGHT AND POWER COMPANY.	IN CHANCERY. No. 29776.

ABSTRACT OF PROOFS.

JAMES H. WILKERSON,
United States Attorney,

BARTON CORNEAU,
Special Assistant United States Attorney,

MORTON S. CRESSY,
Special Assistant United States Attorney,
Counsel for the United States.

FRANK H. SCOTT,
Counsel for the Economy Light and Power Company.

1913
THE GUNTHORP-WARREN PRINTING CO.
CHICAGO

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IN THE

District Court of the United States

FOR THE NORTHERN DISTRICT OF ILLINOIS,

EASTERN DIVISION.

UNITED STATES OF AMERICA, *vs.* ECONOMY LIGHT AND POWER COMPANY.	IN CHANCERY. No. 29776.

DEFENDANT'S EVIDENCE.

2476 J. W. WOERMANN, a witness called on behalf of defendant:

Direct Examination by Mr. Scott.

My name is J. W. Woermann. I am 43 years old, a civil engineer, and reside in St. Louis, Missouri. Have been assistant engineer Western Division United States Army since February, 1909. In 1889 I completed the four-year course in civil engineering at Washington University, St. Louis. Was employed from June 1 to October 1, 1889, in connection with a survey of the waterway from Lake Michigan to La Salle.

Then returned to Washington University and in June,
2477 1890, secured the degree of civil engineer. From then until January 1, 1891, was employed on survey of Upper Missouri river by the United States; a portion of the time on the triangulation work between Sioux City and Omaha but most of the time on a survey of the Upper Missouri river from

Gallatin down to Fort Benton. From January 1, 1891, to July, 1892, was engaged in making surveys and maps concerning the location of the Illinois and Mississippi, or Hennepin, Canal. From July, 1892, until November, 1895, was employed on the construction of said canal around the lower rapids of Rock river and was in charge of said Canal after it was opened to navigation in November, 1895, until July, 1896, and from then until November of that year was making surveys for location of a dam across Rock river at the head of the Hennepin Canal feeder. From November, 1896, until the next May had charge of dredging on the Chicago river and the south branch, and from May until October, 1897, was engaged in making surveys for location of western section of Illinois and Mississippi Canal, and was continuously employed on various sections of said canal until October, 1902. For the next three years was
2478 employed in making surveys, maps, plans and estimates for a fourteen-foot waterway from Lockport, Illinois, to the Mississippi river. From October, 1905, until July, 1908, I was engaged in private practice at Peoria, Illinois, as a consulting engineer, etc., and construction of the bridge across the Illinois river at Peoria, for the Illinois Traction Company. Subsequently took charge of the construction of the water-power plant of the Economy Light and Power Company at the mouth of the Desplaines river. From July, 1908, until February I was again employed by the United States in making plans and estimates for a fourteen-foot waterway from St. Louis to Cairo. Since February, 1909, I have been assistant engineer to the division engineer of the Western Division, which includes St. Paul, Rock Island, St. Louis, Little Rock, Vicksburg, Kansas City and the second Chicago, there being two engineering offices in Chicago. I check over all
2479 projects, plans, estimates and miscellaneous papers that come from these various districts and pass through our office on their way to Washington. I belong to the following scientific and technical societies: Engineers' Club of St. Louis, since 1892; American Society of Engineers, since 1895; Illinois Society of Engineers and Surveyors, since 1906; International Navigation Congress, since 1906; and Western Society of Engineers, since 1907. My report on the survey, plans and estimates for a fourteen-foot waterway from Lockport to the Mississippi river forms the main portion of House Document No. 263, the report of the Ernst Board. My
2480 report on the plans and estimates for a fourteen-foot waterway from St. Louis to Cairo, by means of a lateral

canal, and a similar report for a waterway by means of movable dams and locks from St. Louis to Cairo, are published over my name on the report of the Board of Examination and Survey of the Mississippi river, published in 1909, which is an official government report. Various other reports have been used by my superior officers. The Ernst report included a portion of the Desplaines and Illinois rivers. My first acquaintance with the Desplaines river was in 1889 in connection with the surveys made under Captain Marshall, between Chicago and the mouth of the river; between Summit and the mouth of the river. I was with one of the parties that se-

cured miscellaneous data between Summit and Joliet,
2481 and in the early summer and July went in a rowboat
from Joliet to La Salle, to determine the elevation of all high water marks that could be found from earlier floods. Went from Chicago to Joliet in the Illinois and Michigan Canal, carried the boat from there into the river below Adams dam, and from that point to La Salle followed the river. Was engaged in the work under Marshall during June, July, August and September. Our investigations referred to the Desplaines and upper Illinois. My next work on the Desplaines was in connection with the survey I made from 1902 to 1905 under the Ernst Board. I was in charge of that survey, the survey maps, plans and estimates. Fourteen parties were un-

der me operating from three steamboats and three quar-
2482 ter boats. We began the survey at the mouth of the Illinois at Grafton and the survey extended through to Chicago. We used the steamboats and quarter boats from the mouth of the Illinois river to La Salle, Illinois. Above La Salle the parties boarded at hotels in the towns or with farmers near the river. They made a survey of the river above La Salle. I saw the river many times in connection with my work. We did not do much on the upper portion until the latter part of 1903 and 1904. As to what part of 1904, will say I had men at work during the entire year of 1904. One party was employed taking discharge measurements during

the flood of 1904 and later on during the low water
2483 season. I did office and field work in connection with
the survey. My office was on a quarter boat and I was on the river altogether for two years. When working on the Desplaines my headquarters were in Peoria. I could not tell definitely how frequently I was on the Desplaines. It was at irregular intervals. I visited the parties in the field at different times and in the fall of 1904 I went over the Desplaines

again in a skiff from Joliet to La Salle, which was the same trip I made in 1889. The same stretch of river. Did this to familiarize myself with the river and adjacent topography. I established a number of new gauges on the Illinois and Desplaines rivers, had a large number of gauge readers reading
these new gauges and many old gauges from Grafton to
2484 Joliet. Had one party engaged in taking discharge
measurements continuously for the greater part of the year under my direction. In consultation with Colonel Ernst I prepared the plans for locks, dams, bridges, and other necessary structures, including the plans and estimates for the proposed canal, around the rapids at Joliet and Marseilles. To find all the gauge readings which had been taken at any time along the Desplaines and Illinois rivers I had several men engaged for a number of months searching the records of the United States engineer's office, railroad offices, offices of city engineers and corporations, and any place where I thought I might find gauge readings for any period. The result of these efforts are published in the House Document No. 263 of the
Ernst report heretofore referred to. Have made a
2485 special study of the Riverside gauge readings and have
read everything I could find upon the Desplaines river, particularly reports of various army engineers who made surveys of the Illinois and Desplaines at various times. Among them I recall the two Wilson reports of 1867; the Benyaurd report of 1884; the Macomb report of 1874; the Benyuard report of 1883, the report of the Comstock Board in 1886; the Marshall reports of 1889 and 1897; the reports of the Barlow
Board in 1900 and 1901; the Ernst Board in 1905 and the
2486 reports of the Bixby Board in 1910 and 1911. In connection with my examination of these reports I now recall that I examined maps and profiles in connection with the Wilson report; the Benyaurd report in 1883; Marshall survey in 1889; the Barlow Board in 1899 and 1900, and of course the maps and profiles prepared under my direction from 1902 to 1905. The maps and surveys published in connection with that report were prepared under my direction, also some profiles in connection with the Bixby report of 1911, which were not published with the report but are the basis of estimates
given in that report for proposed waterways of eight and
2487 nine feet depth. These profiles prepared by me for that
report cover the river from Lockport, Illinois, to Cairo, Illinois, and were prepared by me in 1908 and 1909. I have here a map prepared by me showing the Desplaines river from

Lockport to the mouth of the Kankakee river, which is the same map that was an exhibit in the state case wherein I was a witness, and was prepared from the surveys of 1867, 1889 and 1899, and from miscellaneous data introduced during the trial of the state case. The miscellaneous data relates to various dams and the dates of their construction and removal. Everything else was taken from the government maps. My
2488 recollection is that everything except some of the dams was taken from the government maps.

Map offered in evidence and statement by counsel for defendant that he would in the list to be given to the government of the evidence from the state case to be used in this case include all the evidence upon which this miscellaneous information to which witness has referred is based.

Objection on the ground that it purports to give the names of these dams, the dates they were erected, and other data, without proof being offered on part of defense to show the foundation for the making of this memorandum.

Whereupon said map was received in evidence and marked Defendant's Exhibit 1. (Said exhibit appears in the Appendix at page ——.)

2489 The WITNESS (continuing). The map shows in the way of obstructions the highway bridge at Ninth street, Lockport, the highway bridge at Sixteenth street, the railway bridge near the lower end of the town, together with Daggets Dam, just above the railroad bridge. Between Lockport and Joliet it shows two railroad bridges and a dam, Norman's dam, just above the penitentiary. In Joliet it shows the Ruby street bridge, dam No. 1, Jackson street bridge, Cass street bridge, Cass street dam, dam No. 2, Jefferson street bridge, C., R. I. & P. R. R. Co. bridge, Adams dam and the McDonough street bridge. Between Joliet and the mouth of the river it shows the Brandon Road Bridge, the Railroad Bridge at the foot of Lake Joliet, a dam on each side of Treat's Island, a highway bridge on each side of Treat's Island, Smith's bridge, the piers of the Kankakee feeder aqueduct, Beards Dam, and the proposed dam of the Economy Light and Power Co. The map shows some of the narrowest widths of the
2490 Desplaines river from Lockport to the mouth. The distances or widths are the natural widths adjacent to the various islands. The widths between bridge piers are not given on this map.

Objection to any widths being given above Dam No. 1 at Joliet as incompetent, immaterial and irrelevant.

The WITNESS (continuing). Just below Lockport the three channels adjacent to and between the two islands, are 90 feet, 50 feet and 65 feet. Just below Dam No. 2 the widths on each side of a small island which was removed by the Sanitary District of Chicago are forty feet and sixty feet. Just below Adams Dam it is given as 200 feet, not being there obstructed by islands. The width just below the mouth is given as 180 feet. Below the mouth of the Du Page, just below the
2491 island, the width is 160 feet.

Objection; incompetent.

The WITNESS (continuing). As to distance from Lockport to various points down the river and to the mouth of the river, I have given on this map the distance in miles, taking Dam No. 1 as the origin, said distances being accurately given. The distance from Dam No. 1 to the mouth of the river is approximately 15.4 miles. From No. 1 to the Ninth street bridge is approximately 4½ miles. In other words, the total distance covered by the map is about 20 miles. The Ninth street
2492 bridge I have just referred to is near Lockport. All of these bridges I have just referred to are fixed bridges, none of them have draws. The bridges are without draw spans and the dams are without locks. I made an investigation at the time as to the bridges above Lockport, and in 1908 an examination as to existing bridges across the Desplaines river from Irving Park Boulevard to the mouth of the river. I do not recall the distance to Irving Park Boulevard, which strikes the Desplaines northwest of Chicago. I suppose that the table appearing on pages 1449 to 1451 of the abstract of the record in the state case is a correct copy of the statement I then
2493 prepared. I have the original here. That table included the number of miles between the various points referred to from the mouth, kind of traffic, type of bridge, number of spans, length of each span, total length of bridge, character of piers and abutments, and remarks. The data contained under these various headings is approximately correct, as ascertained by my investigation at that time. The distances were paced. They were not measured. Approximately refers only to distances. The rest is accurate.

2494-2496 Which said table was then offered in evidence; Objected to as incompetent, immaterial and irrelevant, and marked "Woermann's Exhibit 2, April 14, 1911," and is in the words and figures following, to wit:

WOERMANN EXHIBIT 2, April 14, 1911.

Existing Bridges across Des Plaines River, from Irving Park Boulevard to the Mouth.

No.	Miles from Mouth	LOCAL NAME	Kind of Traffic	Type of Bridges	No. of Spans	Length of each Span	Total Length	Character of piers and Abutments	REMARKS
1	0.7	Aqueduct			6	52	312	Masonry	On abandoned Kankakee feeder.
2	4.5	Smith's Bridge	Wagon	Thru Truss	3	2-90 1-60	240	"	Cylindrical Center Pier.
3	6.7	Bridge at Treat's Isle	"	" "	2	130 100	130 100	"	Bridges on North and So. Channels.
4	12.9	Brandon Road Bridge	"	" "	3	1-130 2-148	426	"	Pratt Type of Truss.
5	14.2	McDonough St. Bridge	"	" "	3	120 1-65	360	"	
6	14.5	Chgo., R. I. & Pacific Ry	Railroad Electric Car	Plate Girder	5	4-88	417	Concrete	
7	14.8	Jefferson St. Bridge	Wagon Electric	Thru Truss	2	114 214	228	Masonry	
8	15.0	Cass St. Bridge	Wagon	Girder	2	90	304	"	Built by Sanitary District of Chgo. 1900.
9	15.3	Jackson St. Bridge Dam No. 1.	"	Pony Truss	5	2-62 2-88 1-89	389	"	Built by Joliet Bridge & Iron Co., 1901.
10	15.6	Ruby St. Bridge	"	Thru Truss	3	111	333	"	Pratt Type of Truss.
11	15.7	Tow Path Bridge	"	" "	3	200	600	"	Pratt Type of Truss.
12	17.0	Elgin, Joliet & Eastern	Railroad	4 Deck Spans 1 Thru Span 9 Deck Plates Girders	14	1-45 8-80 5-130	13335	"	High Bridge.
13	19.0	16th St., Lockport	Wagon	Thru Truss	3	150 Approx. or 175	500	"	Channel crowded west, filled with rubbish.
14	19.7	9th St., Lockport	"	" "	3	189	567	"	

WOERMANN EXHIBIT 2, April 14, 1911.

No.	Miles from Mouth	LOCAL NAME	Kind of Traffic	Type of Bridges	No. of Spans	Length of each Span	Total Length	Character of piers and Abutments	REMARKS
15	23.2	Bridge at Romeo	Wagon	Pony Truss	1	65	355	Masonry	
				Thru Truss	1	100			
				Timber Truss	4	20			
				Trestle	4	15			
16	24.2	Briar Bridge	Railroad	Timber Trestle	1	50			
17	26.2	Quarry Bridge	"	Timber Trestle					
18	27.7	Lemont Road Bridge	Wagon	Arch	28	16	448		
19	27.8	Old R. R. Bridge	Railroad	Timber Trestle	7	60	420	Concrete	Concrete Arches.
20	27.8	Santa Fe R. R. Bridge	"		10	36	720	"	Between Piers are 3 Timber Bent S.
				Deck Girder	6	60			5 of these spans in Main Channel.
					12	60	720	Masonry	
21	35.0	Willow Springs Bridge	Wagon	Thru Truss	3	80	240	Iron Cylinder.	Built in 1886 by P. E. Lane, 177 La Salle St.
22	39.4	Chgo. Junction Ry. Bridge	Railroad	" "	4	1–150	300	Masonry	Steel Trusses.
						3–50			
23	40.2	Summit Wagon Bridge	Wagon	" "	4	3–50	300	"	Steel Trusses.
24	41.0	Santa Fe R. R. Bridge	Railroad	Plate Girder		1–150			
25	41.0	Chgo. & Ill. Western Bridge	"	" "					
26	42.2	Ogden Ave. R. R. Bridge	Electric	" "	3	50	246	Cylindrical	Steel Cylinders, fill with concrete.
27	42.2	Ogden Ave. Wagon Bridge	Wagon	Timber Trestle	6	16			
				Pony Truss	5	50	250	Masonry	At Cream City Amusement Park
28	42.6	Hotel Foot Bridge	Foot	Suspension	1	150	150	Timber	
29	43.1	Joliet Road Bridge	Wagon	Pony Truss	4	60	240	Masonry	
30	44.3	C. B. & Q. R. R. Bridge	Railroad	Plate Girder	4	60	240	"	Near 39th.
31	44.5	Forest Ave. Bridge	Wagon	Pony Truss	3	75	225	"	2 piers of concrete others Cut Stone
32	44.6	Chgo., Riverside & La Grange R. R.	Electric Railroad	Trestle					
33	44.9	Private Bridge at 31st St	Wagon	Thru Truss	2	70	140	"	Condemned. Out of use.
34	45.6	Golf Bridge at 86th	Foot	Pontoon	16	12	192	Timber	

WOERMANN EXHIBIT 2, April 14, 1911.

No.	Miles from Mouth	LOCAL NAME	Kind of Traffic	Type of Bridges	No. of Spans	Length of each Span	Total Length	Character of piers and Abutments	REMARKS
35	46.1	Ill. Cent. Ry. Bridge	Railroad	Timber Trestle Thru Truss	10 1	16 160	320	Masonry	
36	46.2	22nd St. Bridge	Wagon	" "	1	150	150	"	
37	47.4	12th St. Bridge	"	" "	1	120	120	"	
38	47.8	Forest Home Bridge	"	" "	1	120	120	Steel Columns.	1–30′ and 1–15 Approach. In Cemetery.
39	48.2	Aurora, Elgin & Chgo. Ry.	Electric Railroad	Plate Girder	2	90	180	Concrete	
40	.....	Chicago, G. W. R. R.	"	" "	4	50	200	"	
41	.....	Chicago, G. W. R. R.	"	Timber Trestle	13	16	208	.....	Out of use, Ties removed.
42	48.5	Madison St. Bridge	Wagon	Bow String (Phoenix)	1	120	120	Masonry	
43	48.5	Madison St. Car Bridge	Electric	Timber Trestle	6 6	16 24	96 144	.....	
44	49.1	Chgo. & N. W. R. R.	Railroad	Thru Truss	2	100	200	Masonry	
45	49.1	Lake St. Electric Bridge	Electric	Timber Trestle	10	18	180	.....	
46	49.1	Lake St. Wagon Bridge	Wagon	Deck Truss	3	2–40 1–75	155	Iron Columns.	Fink Trusses.
47	50.4	Wis. Central Ry. Bridge	Railroad	Thru Truss	1	150	150	Concrete	Pratt Type.
48	51.0	North Ave. Wagon Bridge	Wagon	" "	1	120	120	Masonry	Overhanging Trees.
49	53.1	Grand Ave. Wagon Bridge	"	" "	1	150	150	"	In Town of Leyden.
50	53.4	Chcgo., Mil. & St. Paul	Railroad	Plate Girder	4	60	240	"	Girders placed (1892).
51	53.7	C. T. T. R. R. Bridge	"	Thru Truss	1	130	130	.....	Trestle and E. & W. end 85′ and 175′ resp.
52	54.9	Irving Park Blvd	Wagon	Bowstring Girder	1	120	120	.....	
53	55.0	Private Bridge	"	Thru Truss	1	120	120	.....	Trestle at E. & W. end 100′ and 25′ resp.

2497 As to whether any of the bridges shown on the exhibit last referred to have any draws or any provision for permitting the passage of boats, I would say they have not. I have testified that I am familiar with the profile in the survey of 1867. The original profile is in evidence. In the United States engineer office in Chicago, or it was at the time this was platted from that in 1908.

I hold in my hand a paper which is an enlarged copy of the profile of 1867 from Joliet to the mouth of the Desplaines river. It is an exact reproduction of an original tracing of that profile. It was made under my direction by W. F. Millar.

W. F. Millar was a draughtsman who was employed by me at that time.

As to by whom the original profile was made, I would say the survey maps and estimates were under the general direction of Assistant Engineer Worrall. The name of his assistants on this particular part of the work I think were Palfry and Griffith. The names are given in the report. The 2498 original profile shows by whom the profile was leveled in the title. They were engineers working on that survey of 1867.

Q. Do you know during what month of the year that survey was made?

A. That party left—

COUNSEL FOR GOVERNMENT. Objected to; he asked if you knew.

COUNSEL FOR DEFENDANT. Do you know?

A. I do.

Q. State during what month.

Cross-Examination.

COUNSEL FOR GOVERNMENT. I would like to ask him the ground of his knowledge, how he knows.

The WITNESS. The report of Gen. Wilson as published in the report of the chief of engineers.

Mr. CRESSY. Your only information concerning it is contained in the report of General Wilson, is it?

The WITNESS. Yes, sir.

COUNSEL FOR GOVERNMENT. What report of Gen. Wilson do you refer to?

The WITNESS. His report of December 17, 1867.

Direct Examination Continued.

Mr. SCOTT. During what month was it made?

The WITNESS. The party left Chicago on June 19, 1867, and reached La Salle—

COUNSEL FOR GOVERNMENT. Objected to on the ground it is not the best evidence and the report shows for itself.

2499 Mr. WOERMANN (continuing). I have the report in my hand, the title of which is: "Message of the President of the United States and Accompanying Documents, to the two Houses of Congress at the Commencement of the Third Session of the 40th Congress." It is marked "House of Representatives, 40th Congress, Third Session, Executive Document 1, part 2."

The report of General Wilson is dated Davenport, Iowa, December 17, 1867. The portions I refer to, are as follows (p. 438):

2499 "A detailed report of the results of the resurvey of the Illinois river during the later part of 1866, under the direction of Brevet Major General J. H. Wilson, was made on the 17th of February, 1867, but as his operations were confined to that part of the river below La Salle, it was thought necessary to continue the sur-
2500 veys to Lake Michigan by all the possible routes, before absolutely fixing the details of the plan of improvement. Accordingly, at as early a date as the season would permit, we organized, under the general authority heretofore cited, three surveying parties under the immediate supervision of Civil Engineer Assistant James Worrall, for the purpose of making a thorough and exhaustive examination of the entire region lying between the southern and western end of Lake Michigan and La Salle on the Illinois river, and also for the purpose of conducting a low-water survey of the river from La Salle to its mouth. To the first of these parties, under Civil Engineer Assistant George Butler Griffin, and afterwards under Civil Engineer Assistant H. Alppers was assigned the duty of surveying the line of the canal from Chicago to La Salle, the Desplaines, and the Illinois rivers, and all the alternate lines which had at any time been spoken of, including that of the Mud Lake.

On page 459, report of James Worrall, dated Lockport, Illinois, December, 1867, in the second paragraph, he states:

On the 19th of June last, I placed a party of engineers on the south branch of the Chicago river at Bridgeport, a suburb of Chicago, which party continued in the field until late in November, having entered the valley of the river Desplaines at a point seven miles from the place of beginning, and followed the valley of that river, and the Illinois river to the foot of Grand Island, in the last mentioned stream."

The WITNESS (continuing). The "June" referred to, is of the year 1867.

Objection to the introduction of the enlarged copy of the profile of 1867. Counsel for complainant asked that original be produced in court for inspection, and agreed to assist in its production from the engineer's office. Without waiving objection.

2502 The WITNESS (continuing): At that time and recently I examined that profile for the purpose of ascertaining the depth shown by it in the Desplaines river—

Further objection made to this profile and to the original of which it is alleged to be a copy, on the ground that it does not represent the condition of the Des Plaines river in a state of nature, the contention of the complainant being that the map does not represent the condition of the Des Plaines river in a state of nature, because that state of nature was changed by the construction of the Illinois and Michigan Canal in 1848.

2503 The WITNESS (continuing): when it was retraced for me by Paul Burgoldt at St. Louis, Missouri, in April, 1911. This copy by Burgoldt is a copy of my copy. The depths which I gave, were scaled and used by me in checking the profile which Millar prepared and the one which Burgoldt traced from Millar's so that I am prepared to state the depths as shown on the original government profile.

2504 In the rapids below Joliet, at the shallowest points, they are .5 and .6 of a foot. At Treat's Island .8 of a foot; at Smith's Bridge 1.2 and 1.4; at Beard's Dam, nothing, and just below Beard's Dam, .4 of a foot. This dam is about a half mile above the mouth of the Kankakee river.

Whereupon said document was offered in evidence and marked Woermann's Exhibit 3. (Said exhibit appears in the Appendix at page ——.)

The WITNESS (continuing). This government profile of 1867 with reference to obstructions in the Desplaines river, shows Adams Dam and Beard's Dam, but does not show the

Kankakee feeder acqueduct and the Brandon's road bridge, which I have added from the information in the Wilson map which accompanied this profile. In addition to what
2505 appears on the original survey profile, I have placed on my profile the location of dam No. 1, Brandon's road bridge, mouth of Jackson creek, mouth of DuPage river and Kankakee feeder acqueduct and mouth of the Kankakee river. The original Wilson profile does not show the character of the bottom. Also I have shown the character of the bottom, by indicating which portions are rock, mud or gravel, this latter information being taken from a later government profile prepared by Assistant Engineer James
2506 A. Seddon in 1899. The character of the bottom is indicated by topographical signs ordinarily used for that purpose, which appear under the continuous white line indicating the bottom of the river. At Treat's Island I added the words: "Right hand channel." The map shows that that was the right hand channel, but the profile did not, so they were added to make that point clear.

2506 Thereupon ensued a colloquy between counsel on the inability of the department to locate and produce the original of the profile of 1867.

2507 The WITNESS (interrupting). Woermann Ex. No. 2 in the state case, was a blueprint from the original tracing. My reason for making this, was because that was not clear, it being a very old tracing, and to a smaller scale. It was a blueprint from the original tracing, which was
2508 in the engineering department at Chicago during the state trial in 1908, and in my possession when I made the blueprint from it. Mr. Clemant, now of the Kansas City office, then knew where those maps were here. Besides
2509 Clemant and Millar, Grohmann, another assistant, who furnished the map to me in 1908, saw it and might now locate it; that is, he had a memorandum of it when I borrowed it from the office. I know that to have been the original profile.

2510 COUNSEL FOR DEFENDANT. This profile is introduced in evidence.

Objection on the additional ground that it is not the best evidence; that no reason is given for making the profile upon a different scale than the original, and that it is incompetent, immaterial and irrelevant.

The WITNESS (continuing). The original is on a small

scale, does not depict the depth and slope as graphically as the larger scale. I adopted this particular scale, because the Seddon profile is on the same scale. The bottom here, is as given in the Wilson profile, but the 1883 profile, which I prepared, uses the bottom as depicted by Seddon in
2511 1899, and this was drawn on the same scale, so that the two profiles are identical for comparison.

(Counsel for complainant notified to produce at next session, the blueprint which the witness testified was made by him directly from the original profile, as offered in evidence in the state case.)

2512 In an investigation I made, I ascertained from a paper prepared by Ossian Guthrie whether or not there was any artificial discharge in the Desplaines river during the period in which the survey of 1867 was made.

2513 (Pamphlet handed witness): I have in hand a pamphlet entitled: "The Great Lakes and their Relations to the Lakes and Gulf Waterway, by Ossian Guthrie."

Q. Will you please turn to that portion of it to which you refer in your statement, that you had ascertained that there were artificial additions made to Desplaines river during the time when that survey was being made?

Objection on the ground that no proper foundation had been laid for the introduction of this testimony; to which counsel for defendant replied that the foundation had been laid by the testimony of Cooley as to Ossian Guthrie and his authorities. In order not to delay counsel for government reserved further objection.

The WITNESS (continuing). On page 27 Mr. Guthrie gives a table which gives the period in each year during which the Bridgeport pumps were operated from 1860 to 1867, inclusive, and certain other data in connection therewith, which said pages 27 and 28, were considered as read and copied into the record, and are as follows, to wit:

	Running time in min's.	Cubic ft. per min.	Population.	Cubic feet per min. per 100,000 inhb's.	Remarks
1860					
June 31 to July 31	9,171	12,000	109,000	11,009	
Aug. 1-31	4,891	8,257	"	7,575	
Sept. 3-26	3,011	14,000	"	12,844	
1861					
June 23 to Aug. 31	23,100	11,000	124,000	8,800	
1862					
May 28-31	2,810	18,000	138,000	13,000	
June 22-30	5,390	12,000	"	8,834	
July 1-19	16,703	13,400	"	9,700	
1863					
July 5-31	15,710	12,500	153,000	8,170	
Aug. 1-31	16,430	10,500	"	6,860	
Sept. 1-30	10,915	10,000	"	6,500	
Oct. 1-15	About like Sept.			6,500	

2516

	Running time in min's.	Cubic ft. per min.	Population.	Cubic feet per min. per 100,000 inhb's.	Remarks.
1864					
June 11-30	11,900	10,800	169,000	6,400	This year
July 1-16	13,995	10,000	"	5,900	showed the
Aug. 11-31	15,395	10,600	"	6,200	first deposit
Sept. 1-30	Same as August			6,200	of sludge in
Oct. 1-31	About			4,000	the canal.
1865					
May 29 to Oct. 25, inclusive.			290	934,000	Irregularly. After this date
1866					irregular.
June 7-30	24,480	10,000	200,000	5,000	This pumping
1867					was in excess
June 19-30	15,840	12,340	225,000	5,500 or an av'ge 5,041	of the needs of Chicago. Lockport millers wanted the water.
July 1 to Nov. 15	198,720	13,000	"	av'ge 5,500	

"SEWAGE DILUTION.

To the Joint Special Committee appointed to investigate in relation to the effect of Chicago Sewage upon the rivers through which it passes:

Gentlemen:—You will recollect that at your meeting of March 31, Mr. J. D. Paige, representing the delegation from Joliet, contended that no benefit would be derived from dilution. In reply to my question, he said that no disagreeable effects were ever experienced until

1045

after the deepening of the canal in 1871, and in this position he seemed to be supported by the whole delegation, or at least was not contradicted by a single member. My object in questioning Mr. Paige was to lay the foundation for introducing the above table showing the operation of the Bridgeport pumping works from 1860 to 1867, inclusive.

The pumps were operated to the close of the year 1870.

This record shows, particularly that in 1867, for a period of five months almost the entire sewage of Chicago (the city then containing 225,000 inhabitants), was sent down the canal diluted by 5,500 cubic feet of water per minute for each 100,000 inhabitants, and passed Joliet unnoticed, as shown by her own delegation it had done. To a greater or less extent, Chicago sewage, it was also shown, had, since the opening of the canal in 1848, passed Joliet; much of this time, by reason of long delay in starting the pumps, the Chicago river was in as offensive a condition as it has ever been since. This evidence, with that of Mr. Paige undisputed, viz.: that no inconvenience was ever felt until after the deepening of the canal in 1871, seems conclusive that sewage may be so diluted as to be inoffensive to the senses. In addition to the degree of dilution shown above, the flow of the Desplaines river was then uninterrupted, and summer packing, which now contributes largely to the river polution, was unknown.

O. GUTHRIE."

For 1867 it appears that the pumps were operated from June 19 to June 30 at the rate of 12,340 cubic feet per minute and from July 1st to November 15, at the rate of 13,000 cubic feet per minute. In his remarks he states:

"This pumping was in excess of the needs of Chicago; Lockport millers wanted the water."

The period referred to there, when the pumping was being done in 1867, was from June 19 to November 15, and the survey of 1867 was from June 19 to late in November of that year. The periods were practically coincident, beginning on the same date. I understand Ossian Guthrie is dead. I think the general character of the pamphlet here referred to, is indicated by the title. Guthrie cites various persons, their statements and publica-

tions, and refers to Cooley. I have investigated as to the amount of water required for navigation on the Channahon level of the Illinois and Michigan Canal; also as to whether or not any water was taken from the Desplaines river into said Channahon level which was not needed for navigation.

2523 Objected to as incompetent, irrelevant and immaterial

I found my information on that subject in the records of the state case. (Abst., 1735, 1736.) I refer to the data which was admitted by stipulation of the parties thereto in regard to the case of Druley *vs* Adams, which is as follows (reading):

"That from dam No. 2 in Joliet south the canal level is known as the Channahon level; that all the water which is put into said level for any purposes is drawn from the pool formed by dam No. 2 at Joliet, above plaintiff's dam, and since the building of said canal and
2524 its opening in 1848 until the completion of the structure of defendants no water had ever been drawn from said level, or had been put into the same except as required for navigation purposes, nor had any water power been used or leased on said level." Page 1736.

"That the amount of water which is discharged into the Desplaines river at Lockport from the summit division of said canal through said spillway and Norton & Co.'s race is about 25,000 cubic feet per minute; that the amount of water required for navigation purposes on the canal from lock No. 1 to dam No. 1 is about 1,220 cubic feet per minute; that the amount of water required for navigation purposes of said canal from Dam No. 1 to the end of the Channahon level is about 3,300 feet per minute, and the amount required for navigation purposes on the Channahon level alone is about 2,800 cubic feet per minute."

The first extract read, referred to the time of completion of defendant's (Druley's) wheels, which was in 1878.

2525 From my experience as a hydraulic engineer, and taking into account my investigations as to the Desplaines river
2526 (stating approximately the discharge in cubic feet per second in a state of nature at Riverside) the discharge which would be equivalent to the elevations shown on the profile of 1867 between Adams Dam and the mouth of the Kankakee, would be 116 feet; that is, it would require 116

feet per second passing Riverside, to show the elevations appearing on this profile of 1867; that corresponds to a depth of .7 of a foot at Riverside and to a reading upon the gauge of 12.1 feet. I arrived at the depth and reading which I have given by beginning with this 13,000 feet per minute which Guthrie states was pumped during the period of survey. Deducting from that the 2800 feet per minute, which,—according to the evidence in the Druley case, was required for navigation below dam No. 2,—leaves 10,200 cubic feet in the river below dam No. 2, or 170 cubic feet per second. Then, by proportion, taking the area of the watershed above Riverside as 633 square miles, and the area above the mouth
2527 of Hickory creek as 924 square miles, I found that the corresponding discharge at Riverside was approximately 116 cubic feet per second. According to the table of discharges introduced by T. T. Johnson in the state case, this discharge of 116 cubic feet per second corresponds to the gauge reading 12.1 feet by interpolation or .7 of a foot depth on the bar below the gauge at Riverside. The elevation as shown by the profile, do not correctly show the elevations in that stretch of the river, as they would have been at that time, had there been no additions by reason of the pumping works. It differs from what conditions would have been in this: that the entire 170 cubic feet per second, which is the basis of this computation, was contributed by the Illinois and Michigan Canal; 1867 being an unusually dry year, would indicate that in all probability the river would have been practically dry at that time if it had not been for this contribution from the Illinois and Michigan Canal.

2528 I make that statement in view of my examination of the history of the river, the readings of the gauges and the rainfalls for various years. The rainfall for 1867, being, as I recall it, about 30 inches for this part of the state as compared to about 38 for normal.

Motion by counsel for complainant to strike out, on the ground that no foundation has been laid for the asking of any such questions.

2529 I have here a table of rainfall for each year from 1851 to 1895, inclusive, which was abstracted from Leverett's Water Resources of Illinois. It appears in the official report of the Illinois State Board of Health sanitary investigations of the Illinois river and its tributaries, 1901, on page 160.

2530 Whereupon the table was introduced in evidence, being considered as read, which said table is in words and figures as follows, to wit:

"TABLE SHOWING YEARLY VARIATIONS IN RAINFALL OF ILLINOIS.

Year.	Number of Stations.	Average (Inches.)	Range (Inches.)
1851	5	54.1	45.4-74.5
1852	5	47.8	38.4-59.4
1853	4	38.9	30.9-45.2
1854	6	34.1	23.6-46.3
1855	6	41.7	29.1-50.5
1856	9	32.7	23.3-43.9
1857	9	34.1	27.5-39.8
1858	13	51.1	45.2-68.8
1859	11	37.3	26.5-61.3
1860	8	33.9	25.2-56.2
1861	13	39.0	30.0-68.6
1862	13	46.7	34.9-70.4
2531 1863	11	33.5	25.6-50.4
1864	15	31.4	24.0-38.3
1865	16	40.0	24.5-51.8
1866	17	36.9	30.2-45.3
1867	19	30.2	22.4-40.2
1868	19	38.0	25.9-45.6
1869	20	41.8	30.4-51.5
1870	21	30.0	20.3-41.3
1871	18	32.3	22.6-40.8
1872	19	31.8	24.8-39.5
1873	18	38.3	19.7-54.5
1874	20	33.2	23.8-47.5
1875	20	40.5	26.9-59.5
1876	22	45.3	34.5-62.6
1877	20	41.9	33.3-54.9
1878	20	37.9	31.2-45.6
1879	20	32.0	21.5-52.3
1880	24	39.5	30.6-53.2
1881	22	41.8	32.7-56.4
1882	24	43.8	33.0-70.8
1883	27	44.1	33.7-61.5
1884	25	42.1	32.8-66.6
2532 1885	27	39.5	32.1-50.1
1886	33	34.0	18.9-50.6
1887	33	32.2	16.1-38.3

Year.	Number of Stations.	Average (Inches.)	Range (Inches.)
1888	33	37.3	26.0-62.9
1889	34	34.7	24.4-42.8
1890	34	38.3	23.5-49.8
1891	32	33.0	25.9-45.1
1892	49	41.4	31.1-63.3
1893	53	34.1	20.3-48.8
1894	75	29.3	18.2-40.4
1895	97	31.9	19.7-46.4

The WITNESS (continuing). The average is given in the paragraph at the foot of the table. I base my conclusion that there would probably have been no water in the river in 1867 under natural conditions, principally upon the record of the Riverside gauge, which record has been introduced in evidence in connection with Mr. Cooley's examination. I have
2533 read extracts from the reports of the engineers who were officially concerned in the surveys for the Illinois and Michigan Canal, which refer to the natural flow of the Desplaines river, and they also enter into the foregoing conclusion. The Board of Health report states that the low water, when it is dry in the summer time, is frequently as low as four cubic feet.

Objection to the question and answer in reference to reports of early engineers, on the ground that witness is asked to make a conclusion as to what they say, without referring particularly to the persons he has in mind.

The WITNESS (continuing). I do not now recall the names of the engineers. I will look them up. This passage in the report of the State Board of Health throws light upon this question of the natural flow of the river.

Objection on the ground that no proper foundation has been laid for its introduction, and that it is incompetent and immaterial, since the author of the particular article is still alive, and can be produced.

The WITNESS (continuing, reading, p. 158):

2534 "From the foregoing data it is quite evident that the contributions to the flow of the Illinois river during the dry periods come principally from the Kankakee river and the Fox river, the Desplaines and the Vermilion being practically dry at these periods."

2535 Jacob A. Harman of Peoria, is the author of that particular article, and is still living. He is a civil engineer, engaged principally in drainage work, and is retained

by the Sanitary District to act in an engineering capacity, in defending them against suits for damages; he has been with the district for many years. On page 134 is given the result of discharge measurements taken by Harman in October, 1899, which he says "represent approximately the average conditions of these streams during the late summer and early fall months." The measurements of the Desplaines river were taken one mile below the C., B. & Q. railroad bridge at Riverside. The cross section was also taken at said bridge for gaugings at higher stages of the river. The flow, according to that measurement, was 13.21 cubic feet per second.

2536 Motion by counsel for complainant to strike out all references from Harman's article, on the ground that it is incompetent, immaterial and irrelevant, and that the author is not produced for cross-examination.

(Witness, continuing): The book purports to be a re-
2537 port of the State Board of Health. It is made up of several independent reports, all of which go to make up the report of the Board. The last and largest report is Harman's, which is entitled: "Report of the Preliminary Sanitary Survey of the Illinois River Drainage Basin, March, 1901. Jacob Harman, C. E." and is addressed to James A. Egan, Secretary of the Illinois State Board of Health. The second paragraph on page 9 of the main report, refers to Harman's report in the following language (reading):

"To properly conduct these investigations the secretary secured the services of Professor John H. Long, of the Northwestern University, whose analysis of the waters of the Illinois and Michigan canal and of the different rivers of the state have received favorable notice in the majority of publications on the purification of water supplies and sewage disposal at home and
2538 abroad and of Mr. Jacob A. Harman, civil engineer of Peoria. To these gentlemen was intrusted the duties in the lines of their respective professions, and their reports are herewith submitted."

2538 The first paragraph on the first page after the title page reads: "Polution of the Illinois river, as Affected by the Drainage of Chicago and Other Cities; By James A. Egan, M. D." That is the title. The paragraph is as follows:

"At a meeting of the State Board of Health, held in Chicago on the 20th day of June, 1899, a resolution was

adopted directing the secretary to take immediate steps to cause an investigation to be made of the waters of the Illinois river, with a view of determining its condition under the circumstances then prevailing, and which would obtain, subject to the changes incidental to the different seasons, until the quantity of water was increased by the opening of the canal under construction. The resolution also directed that the investigations be continued after the opening of the canal, until sufficient information was available to enable the board to judge whether the condition of the water was improved by the augmented flow."

2539 The gauge readings at Riverside are of very great value, because they cover a long period of consecutive years. They are scientific observations, in the sense that they are elevations of the water surveys accurately read on a gauge which was set and inspected frequently by engineers of the Sanitary District. They were taken by a disinterested observer without relation to any use which they might have in a case of this character, for example; and for the further reason that the discharge section was maintained at the same place by the Sanitary District, so that the gauge readings can be connected up directly with the volume which passed at any particular stage. Also the gauge is above any alleged depletions that may have occurred

2540 on account of various interferences below this point.

It is possible for one skilled in engineering to approximately reconstruct the conditions as they existed in the Desplaines river in a state of nature, from the readings of the Riverside gauge.

Q. How, if at all, has the flow, as shown by the gauge readings at Riverside, been influenced by inhabitation or deforestation?

Objection; on the ground that there has been no foundation laid for the question.

(Witness, continuing): In my opinion, very little, if any, because only a small portion of the Desplaines river basin was covered with timber in a state of nature. In an investigation I made to ascertain what proportion of the Desplaines basin was covered by timber, I studied the original land survey maps, which are stored in the vaults at Springfield, and were made under authority of the United States about 1830 or earlier. The timber is shown thereon by a wavy line to

indicate the limits of the timber, and is marked "tim-
2541 ber." Outside of that wavy line it is marked "prairie."
I am able to state, from my examination, to what extent the Desplaines basin was wooded, and a table I compiled shows the percentage of the wooded area to be approximately 25 per cent. I made the examination in March, 1911. I have the copy of the table before me in the form of a blue print. The originals were on white mounted drawing paper, bound in large volumes, one township being depicted on each page. In preparing this map, I allowed one of these inch squares to correspond to one of those townships, and indicated by figures in the square the number of square miles of tim-
2542 ber in that township. From my traveling along the river in connection with government surveys and in connection with my work there for the Economy Light & Power Company in 1907 and 1908 when I was constructing their dam, and in looking up the bridges from the mouth to Irving Park boulevard, I know that a large part of that wooded area still remains wooded.

Objection, and motion to strike out, on the ground that no proper foundation was laid for the answer.

(Witness, continuing): I have made an investigation of the effect of deforestation upon the run-off, and particularly with reference to such a basin as the Desplaines water-
2543 shed is. I have read many reports on the subject, some of them governmental and not published; also have read Col. Chittenden's paper and discussions of the same, and the papers that were presented before the Navigation Congress at Milan, Italy, in 1905, when that subject was up for discussion. The Chittenden papers and discussions
2544 thereof, are the same which have been referred to in the testimony in this case in connection with the subject of deforestation.

Cross-Examination by Mr. Cressy.

The investigation which I have made with reference to the question of deforestation, is my observation of the land in the valley which I have walked over and driven over repeatedly from 1889 to the present time; my general observations as to the character of the soil and its condition;
2545 those other things with reference to deforestation in general which I enumerated a few moments ago; and I have read all of the 16 reports of the Illinois state geological

survey, many of the reports of the United States geo-
2546 logical survey, which have over 300 water supply pa-
pers, a large number of which I have in my library which I have skimmed through as they have come into my hands, and in many other cases. It is difficult for a man to enumerate on the basis of all the knowledge and opinions he has on the subject. I have never been north of Irving Park boulevard, except to cross the valley on the railroad.
2547 I have driven and hunted in the Du Page valley. I did not have the question of how much territory was wooded, before me, but I had my eyes open.

Objection; renewed by counsel for complainant, that no proper foundation has been laid for asking the opinion of this witness in regard to the present forest conditions.

Direct Examination Continued.

2548 The WITNESS (continuing). My experience as an engineer throughout my entire career has been almost entirely in connection with the subject of waterways and the improvement of waterways for navigation. The question of deforestation is one in which an engineer engaged in that line of work necessarily advises himself, and I have studied it in that connection as an engineer.

2548 Concerning deforestation my opinion is that in a basin of this character of an impervious soil, with numerous potholes, basins of various sizes, probably scooped out by the glacial action, with no natural drainage outlet, the existence or non-existence of timber cuts very little figure. Have seen numerous illustrations of that in going over the valley, places where the water stood in those low places
2549 throughout the entire summer, although there was a bluff 100 feet high within a quarter of a mile. The water stood there as permanently as if it had been made of India rubber, on top of those high bluffs. Some of those had timber on them and where they were covered with timber of course the water lasted longer, but in every case the water that fell in that basin never got into the river, timber or no timber. The water did not evaporate so rapidly in the timber country because protected from the sun's rays. Maps at Springfield of the government survey indicate that these potholes were much more abundant in the upper por-

tion of the Desplaines river basin than in the lower. No reference is made on the original government survey map to what has been here referred to as Portage Lake or Mud Lake.

That place is designated by the word "swamp."

2550 These original maps were made for the United States government and stored at Washington, but some years ago distributed to the various states. They are commonly referred to as the original United States Government Survey.

Objection; that this is not the best evidence as to what those original maps show, since the maps are not in the custody of the witness.

The WITNESS (continuing). I am familiar with the certified copy of the original map that was introduced in the state case. Those which were introduced in the

2551 state case covered only a small portion of the entire watershed. The copy of that certified copy which counsel for complainant has just handed me shows nothing above Riverside. The original survey shows the entire basin, more than half of which is above Riverside if you take it on an east and west line. The exhibit handed me shows where this so-called Portage or Mud Lake is. It is marked "swamp," corresponding to the original map. This map also fails to show the Du Page basin, which is a large part of it.

2552 Q. Mr. Woermann, assuming that all the timber shown by the original government survey map had been cut down and destroyed, and taking into account the characteristics of the Desplaines basin and the percentage of the land which was timbered, what effect would that have upon the flow of the Desplaines river as recorded at the Riverside gauge, in your judgment?

Objection; that no proper foundation has been laid.

The WITNESS (continuing). In my opinion it would make very little, if any, difference.

Whereupon the aforesaid blue print referred to by the witness and made up from the government survey was introduced in evidence and marked "Woermann's Exhibit 4." (Said exhibit appears in the Appendix at page.....)

2553 The WITNESS (continuing). These areas were not measured by planimeter or scaled, but by inspection, estimating the area in each township. Of course sections that were entirely covered with timber were easy enough to count, but where the timber line crossed I would estimate it. I

tried to give it as to the nearest half section. If I say 4.5 square miles it might be 4 1/4 or 4 3/4 but on the entire watershed it will average up very closely. My estimate of twenty-five per cent. could not vary from twenty to thirty or
2554 thirty-five per cent. In any individual township there may be an error of half a square mile. Where townships show no timber there is no difficulty. But by the theory of probabilities the greater the number of townships the error on the whole is not cumulative, but varies as to the square root of the number. I have forgotten the formula. The result is probably correct within less than one per cent.

Q. What influence, in your opinion, has inhabitation had upon the flow of the Desplaines river, as indicated by the Riverside gauge?

Objection; that no proper foundation has been laid for the question.

A. If it has had any effect, my opinion is that it has increased the flow rather than decreased it, because many of those potholes I referred to have been tiled and now the water drains from them into the river,
2555 which formerly never got into it; the towns which have been built up in the valley have been supplied with water from artesian wells in many cases, the flow of which eventually gets into the sewers and from thence into the river. In other words there is a contribution which is the result of inhabitation, which in the state of nature did not occur, while so far as I know none of these towns take their water from the river for their water supply. A discharge in the state of nature at Riverside, equivalent to the elevation on the profile of 1867, would correspond to a depth of .7 of a foot, or equivalent of 12.1 feet on the Riverside gauge.

Q. Assuming that there was no water coming into the river from the canal, can you state from your examination of the Riverside gauge records how many days in each month the river would have had that amount of water, that is to say, as shown by the gauge readings between the first of April and the first of December of each year?

Objection; that no proper foundation has been laid for the question.

2556 The WITNESS (continuing). I have examined the gauge readings with reference to that and checked them over to ascertain the fact. I have the gauge readings, which are the same introduced in connection with Mr. Cooley's tes-

timony. I have the record in relation to the condition existing in 1867.

Q. Assuming a state of nature and that no water was supplied from the river to the canal, which would of course follow, it being a state of nature, from your examination of the Riverside gauge records can you state how
2557 many days in each month of each year during which the record was kept, there would have been the stage of water shown as .7 of a foot in depth, or the equivalent of 12.1 feet on the Riverside gauge, that is, in relation to the condition existing in 1867 between April 1 and the end of November?

A. In 1886 the record extends from May 15 to November 30th. In that year there were no days in May; 25 in June; 24 in July; 31 in August; 30 in September; 31 in October; 30 in November. In 1887 the record extends from April 1 to November 26th. Those were days in which there were .7 of a foot, or less than .7 of a foot, depth. In other words, those were the days when the water would have been as shown in this 1867 profile or something lower.

2558 In April, 1887, 5 days May, 30 days; June, 30 days; July, 17 days; August, 31 days; September, 25 days; October, zero; November, zero days.

In 1888, the record extends from September 2nd to No- August, 16 days; September, 30 days; October, 31 days; November, 30 days.

In 1889, the record extends from April 1 to November 30; in April, 10 days; May, 16 days; June, 10 days; July, 13 days; August, 16 days; September, 30 days October, 31 days; November, 30 days.

In 1890 the record extends from July 24 to November 30; in July, 8 days; August, 31 days; September, 30 days; October, 31 days; November, 30 days.

In 1891, no record.

In 1892 the record extends from May 3 to November 30. In May, zero days; June, zero days; July, 15 days; August, 31 days; September, 30 days; October, 31 days; November, 30 days.

In 1893 and all of the succeeding years the record is complete, from April 1st to November 30th, inclusive. In 1893, in April, 3 days; May, 2 days; June, 2 days; July, 29 days; August, 31 days; September, 30 days; October, 31 days; November, 30 days.

In 1894, in April, 5 days; May, zero days; June, 29 days; July, 31 days; August, 31 days, September, 30
2559 days; October, 31 days; November, 30 days.

In 1895, in April, 18 days; May, 28 days; June, 30 days; July, 31 days; August, 31 days; September, 28 days; October, 31 days; November, 30 days.

In 1896, in April, zero days; May, 20 days; June, 26 days; July, 31 days; August, 29 days; September, 14 days; October, 17 days; November, 8 days.

In 1897, in April, zero days; May, 19 days; June, 19 days; July, 31 days; August, 31 days; September, 30 days; October, 31 days; November, 30 days.

In 1898, in April, 14 days; May, 25 days; June, 17 days; July, 24 days; August, 31 days; September, 30 days; October, 31 days; November, 18 days.

In 1899, in April, 11 days; May, 18 days; June, 17 days; July, 15 days; August, 31 days; September, 30 days; October, 31 days; November, 30 days.

In 1900, in April, 3 days; May, 29 days; June, 29 days; July, 31 days; August, 24 days; September, 17 days; October, 31 days; November, 20 days.

In 1901, in April, 11 days; May, 31 days; June, 30 days; July, 31 days; August, 31 days; September, 30 days; October, 31 days; November, 30 days.

In 1902, in April, 28 days; May, 7 days; June, 9 days; July, zero days; August, 23 days; September, 25
2560 days; October, zero days; November, 5 days.

In 1903, in April, zero days; May, 31 days; June, 27 days; July, 24 days; August, 14 days; September, zero days; October, 10 days; November, 30 days.

In 1904, in April, zero days; May, 25 days; June, 30 days; July, 30 days; August, 30 days; September, 30 days; October, 31 days; November, 30 days.

In 1905 in April, 11 days; May, 3 days; June, 16 days; July, 26 days; August, 22 days; September, 14 days; October, 19 days; November, 26 days.

In 1906, in April, 5 days; May, 23 days; June, 30 days; July, 31 days; August, 31 days; September, 30 days; October, 30 days; November, 22 days.

In 1907, in April, 6 days; May, 4 days; June, 5 days; July, 24 days; August, 30 days; September, 18 days; October, 18 days; November, 30 days.

In 1908, in April, 2 days; May, zero days; June, 15 days;

July, 28 days, August, 31 days; September, 30 days; October, 31 days; November, 30 days.

In 1909, in April, 7 days; May, 13 days; June, 16 days; July, 31 days; August, 23 days; September, 30 days; October, 31 days; November, 16 days.

In 1910, in April, 19 days; May, 2 days; June, 18 days; July, 31 days; August, 31 days; September, 30 days; October, 31 days; November, 30 days.

2561 The correct understanding of my testimony is that the days I have mentioned are the days at which the same depths, or lower depths than those shown on the profiles of 1867, from Adams Dam to the mouth of the river, would prevail according to the readings of the Riverside gauge.

Objection; that no proper foundation has been laid for the question, and motion to strike out on the same ground.

The WITNESS (continuing). The extreme limit of flow, as far as high flow is concerned, of those days was 12.1 feet. that is, the reading on the gauge was 12.1 feet or less. The rainfall for the year 1883 was 44″ as compared with the normal rainfall of 38″.

2562 From the table of precipitation (introduced in connection with Cooley's testimony) since and including the year 1887, it appears that the precipitation of 1883 was larger than most of the years, and my recollection is that it was larger than any of the years. I have two tables, the table from Leverett's Water Resources of Illinois, and the table Mr. Cooley introduced for the later years that is in evidence in this case, at page 1396 of the transcript. The rainfall in 1883, according to Leverett, was 44.1 for the entire State of Illinois. Cooley's table is for Chicago, and in that respect the two tables differ, but are probably sufficiently near for our purposes. Cooley's table does not give the rainfall in 1888, 1890, 1891 or 1892. For those years I

2563 still have no comparison. For all the years shown on these two tables subsequent to 1893, there is less rainfall than there was in that year. Leverett's table goes from 1851 to 1883. During that period there seems to be five years when the precipitation was greater than in 1883. They were 1851, 1852, 1858, 1862 and 1876. Leverett's table in this

2564 volume extends from 1851 to 1895, inclusive. Cooley's begins with 1887 and extends to 1910, inclusive, omitting some years. So far as these records go, for a period of

sixty years there were but five years when the rainfall was greater than in 1883.

Objection; on the ground that the Leverett table applies to the entire state and is unofficial, and it is possible to procure a table which applies to the northern part of Illinois from the official reports kept in Chicago.

The WITNESS (continuing). The precipitation in Chicago district as compared to the whole state would not differ much. As compared to the northern part of the state it would be heavier in Chicago than in the territory west and north, on account of the proximity of the lake. The
2565 rainfall for Chicago is determined upon the roof of this building. (Federal Building.)

I hold in my hands a profile of the Desplaines river from Lockport to the mouth, traced from original profiles in the United States Engineer's office, Chicago, Illinois, under the direction of J. W. Woermann, by W. F. Millar, April, 1908. That was
2566 traced from a profile prepared by James A. Sedden in 1899 and depicts the bottom as it was shown to exist by his survey in that year, and the water surface as it was determined by Benyaurd survey in 1883. I compared my tracings with the original after it was prepared by Mr. Millar. It was then a part of the records of the United States Engineer's office in this building. This tracing was an exact copy without any change in the scale, either vertical or horizontal, and was made by laying a tracing cloth over the original which I obtained from the government office, and this blue print is made from that. That profile was re-traced recently by a Paul Burgoldt in St. Louis, and I compared his
2567 tracing with the other tracing. Cooley Exhibit No. 3 is not in all respects an accurate reproduction of the original, the only difference of any importance being the depth at the head of Treat's Island. Cooley's profile shows the depth of 2.8 and the original shows a depth of 2 feet even, which is the depth shown on the surroundings. There is a difference in the slopes. Cooley's lines show a more uniform slope from the head to the foot of the Rapids at Treat's Island, and below Smith Bridge in Joliet, and at the mouth, due partly to the fact that it is drawn on a much smaller scale and it was impossible to show these variations so
2568 minutely. Cooley's profile makes the slope look flatter than the original from which mine was traced. Also

his begins at Joliet, while mine has been extended up to Lockport, that is just a difference as to territory covered, however. I have taken more of the oriiginal than he has, that is, Seddon's profile did not extend albove Joliet, and my line from Joliet to Lockport was taken from the water surface as determined by the Marshall survey in 1889. The 1883 survey began at Joliet and went down stream, while the Marshall survey began at Joliet and came to Chicago. At that point the two surveys came together and neither one shows it continuously from Lockport.

Whereupon the blue print referred to by the witness was offered in evidence and marked "Woermann's Exhibit 5." (Said exhibit appears in the Appendix at page .....)

Objection that the data from which the profile was compiled has not been shown, that no proper foundation has been laid for its introduction on the ground that the title states that it is traced from original profiles and is contradictory, since it cannot be traced from more than one profile.

2570 The WITNESS (continuing): As to this being traced from more than one profile the reason is as stated, the survey of 1883 began at Joliet and went down stream while that of 1889 supplemented that of 1883 by beginning at Joliet and working up stream. As to the scientific proposition advanced by complainant's counsel that it cannot be traced from more than one profile, I think he spoke hastily, without thinking. It was traced from more than one profile. The portions traced from that of 1883 are clearly
2571 marked. The part below Dam No. 1 was traced from the 1883 profile and the part above Dam No. 1 was traced from the 1889 survey, and the two combined into one blue print. By the profile of 1883 I mean that portion below Dam No. 1 which was traced from the profile prepared in 1889 by James A. Seddon, Assistant United States Engineer, who made the survey of 1899 under the Barlow Board. It is called the profile
2572 of 1883 because prepared from notes taken in that year and shows the water surface as it existed at that time. I do not know whether or not it is the same profile Cooley referred to in his profile in 1883. I don't think
2573 I have added anything. It is possible that Seddon did not have this marked left-hand channel. I marked this "right-hand" and this one "left-hand" so there would not be any confusion over that point, as there was in the state

case. There is nothing there except what was there in 1883, and all shown on the profile of that date. The fall of the river from Lockport to Joliet is about 38 feet in 4½ miles. From the foot of Dam No. 1 at Joliet to Lake Joliet there is a fall of 21 feet in 3½ miles. Lake Joliet, about 5 miles
long, has a fall of .2 of a foot. In the rapids at Treat's
2574 Island there is a fall of about 9½ feet in one mile, then a pool of one mile long with practically no fall. Then a rapids at Smith's Bridge where there is a fall of about 2.7 feet in one mile. Then Lake Du Page where there is a fall of .2 feet in about 3½ miles. Then the Rapids at the mouth where there is a fall of 3½ feet in one-half of a mile. I should say that the fall of 9.5 feet at Treat's Island, which has been referred to in the testimony of the government as occurring in 1¼ miles, as a matter of fact occurs in about 1.1 miles, and that fall is concentrated at the head and foot of the island. Where it has been testified that the fall at the mouth is 3.3 feet in .6 of a mile, I find it to be 3½ feet in about ½ mile. In 1883 the discharge in low water was 800 cubic feet per second, as shown by Seddon's profile, which he prepared
for the Sanitary District of Chicago and is the same one
2576 Cooley used. (Cooley's Exhibit showing that handed to the witness.) Beginning at a point below Adams Dam this profile indicates a series of flow lines, representing the water surface for different volumes of flow, the highest being 25,000 cubic feet per second and then for 20,000; 16,000; 13,000; 10,000; 8,000; 6,000; 4,000; 2,000, and .8 of a thousand. It is indicated that the discharge is in cubic feet per second by the words "discharge 1,000 feet per second," and while the mark which shows the discharge of low water of
1883 is not annotated, the bottom line (the low water
2577 line) of the map corresponds to the profile of 1883, and that line on the map of 1883 indicates the discharge at 800 feet per second as it is marked "datum of low water discharge .8 of one thousand," and the lines appearing at several points above are marked "discharge one thousand cubic feet per second," indicating that it was the unit to which the figures below apply. I have compared the line on the Seddon profile marked "Datum low water discharge 0.8" with the low water of 1883 shown on the government profile and it is correct. I refer to the profile from which my profile was traced and also
Cooley Exhibit 3.

2577 I refer, when I say "this line" to the L. W. 1883 as appearing on Cooley Exhibit 3. That exhibit does not

show that the low water discharge is equivalent to 800 cubic feet, which fact appears on the Seddon profile. I am able to state what discharge in a state of nature would be required to be shown at the Riverside gauge to produce the low water of 1883 from Adams Dam to the mouth of the river.

Q. What would be required?

Objection that no proper foundation has been laid for such a question.

A. About 550 cubic feet per second, which is equivalent to a depth of 1.7 feet on the bar at Riverside. The gauge reading at that depth would be 13.1 That is, in order to produce the depth shown on this profile of Cooley's at the low water of 1883, it would require a reading at the gauge of 13.1
2579 feet, or a depth on the bar at Riverside of 1.7 feet. I have examined the Riverside gauge records to determine how many days of each year such a depth in a state of nature would prevail. In 1886, from May 15 to November 30, there were nine days in May, and none during the remainder of the year when that depth existed. That is, there were no days after May up to December 1st when the state of water at Riverside would have been such to have produced the depths shown on Cooley Exhibit 3, from Dam No. 1 to the mouth
2580 in a state of nature. During 1887, from April 1 to November 26,—during those eight months there were no days when there was as much as 1.7 ft. depth at Riverside.

During 1888, for the period of the record from September 2nd to November 30th, there were no days.

In 1889, from April 1st to November 30th, in April 17 days, May zero days; June, seventeen days; July, thirteen days, not consecutive; August, five days; September, no days; October, no days; November, no days.

In 1890 from July 24th to November 30th, the period of the record, there were no days.

For 1891 there is no record.

In 1892 from May 3rd to November 30th, the period of the record, in May, twenty-nine days; June, thirty days; July, seven; August, no days; September, no days; October, no days; November, no days.

In 1893, and all of the subsequent years, the record is complete from April 1st to November 30th. In April, twelve days, not consecutive; in May, fifteen days, not consecutive; in June, fourteen days, not consecutive; and no days during the remainder of the period.

In 1894, in April, seven days; not consecutive; in May,

twenty days, not consecutive; and no days during the remainder of the period.

In 1895, in April, two days, and no days during the remainder of the period.

In 1896, eight days, not consecutive, in April; in May, five days, in June, July, August, September and October, no days; in November, two days.

2581 In 1897, in April, eighteen days, not consecutive; in May, seven days; in June, two days; and no days during the remainder of the period.

In 1898, in April, four days; in May, no days; in June, five days; in July, three days; in August, September and October, no days; in November, four days.

In 1899, one day in April; in May, five days, not consecutive; in June, six days, not consecutive; in July, five days; and no days during the remainder of the period.

In 1900, in April, nine days, not consecutive; in May, June and July, no days; in August, six days, in September, four days; in October and November, no days.

In 1901, in April, nine days; and no days during the remainder of the period.

In 1902, in April, no days; in May, eleven days, not consecutive; July, twenty-two days, not consecutive; August, one day; September 2 days; October nineteen days and consecutive; November seventeen days.

In 1903, in April eighteen days not consecutive; in May, June and July no days; August two days; September seventeen days not consecutive; in October and November no

2582 days.

In 1904, in April, twenty-one days not consecutive; and no days during the remainder of the period.

In 1905, in April, four days; in May, thirteen days; in June no days; in July, two days; in August, no days; in September, seven days; in October and November, no days.

In 1906, in April, eighteen days not consecutive; in May, June, July, September and October, no days; in November, eight days.

In 1907, in April, thirteen days, not consecutive; in May, twelve days not consecutive; in June sixteen days; in July three days; in August no days; in September eight days, not consecutive; in October nine days; in November no days.

In 1908, twenty-one days not consecutive in April; in May twenty-eight days not consecutive; in June three days; and no days during the remainder of the period.

In 1909, in April, nineteen days not consecutive; in May, twelve days; in June, five days not consecutive; in July no days; in August, four days; in September and October no days; in November, six days not consecutive.

In 1910, in April, seven days; in May, twenty days, not consecutive; in June six days, and no days during the remainder of the period.

2583 Starting with a flow of 800 ft. per second between Dam No. 1 and the mouth of the river, I arrive at the depth of 1.7 ft. flowing over the bar at Riverside for a gauge reading of 13.1 at that point, in a manner similar to that by which I arrived at the Riverside depth, which corresponded to the profile of 1867. That is by proportion. Taking the watershed above Riverside as 633 sq. mi. and the entire watershed above the mouth of Hickory Creek as 924 sq. miles, the equation is X is to 800 as 633 is to 924. The discharge at Riverside equals 550 second ft. According to the table of discharges introduced by T. T. Johnson in the state case, this corresponds to a reading of 13.1 ft. at Riverside. On the rapids between Romeo and Lake Joliet, and also at the mouth of the river, there would be less than 15 inches of water when the discharge at Riverside was equivalent to the gauge reading of 13.1, or a depth on the Riverside bar of 1.7 ft.

2584 about 20 inches. The depth of 20 inches at Riverside becomes less at certain places in the Desplaines River, notwithstanding the added contributions of the watershed as you go down stream, on account of the much greater slope which occurs at the points I mention.

2585 Q. Mr. Woermann, in the testimony of Mr. Cooley there was offered a table of the number of days at which the Riverside gauge stood at or about certain elevations in 20 full years from 1887 to 1910, inclusive,—that table appearing at pages 1395, 1396 and 1397, transcript of the record. I wish you would state what value that table has as indicating the navigability of the Desplaines river, or its nonnavigability?

Objection that no foundation has been laid for such a question.

A. I have examined that table. It has very

2586 little value on the question of navigability, principally because it covers the entire year and not the navigation season as ordinarily understood, from April 1 to about December 1. There is the added reason that the depth at the Riverside gauge would not continue all the

way to the mouth of the river. Where the slope was much steeper, as from Romeo to Lake Joliet, at the mouth of the river the depth would be less than indicated in this table. Also the table takes no account of whether the days are consecutive or not; for instance, at page 1396 of the transcript, the first line shows 65 days in 1887, when the gauge reading
2587 was 13.8 or higher, but those 65 days may have been scattered through three or four months, and practically of no value. From the gauge readings compiled under my direction, which appeared in House Document 263, it appears that this period of 13.8 ft. or over began on January 23 and continued until March 21. Then the water was lower than 13.8 during the remainder of the year until December 8, when there were six days with a reading of 13.8 or over. Then it was below 13.8 until December 20, and it continued for five days, so that all the days when it was 13.8 or over were outside of the navigation season in this gauge. There is a reading of the Riverside gauges for 1888. It does not appear
2588 in Cooley's table, but covers the period for the first three months and the last four months practically. In the table for 1887, appearing on transcript page 1396, in Cooley's testimony, it appears that there were 88 days in 1887 when the water was at or above 13 ft. The period when there was a reading of 13.0, or higher, began January 23, and continued until March 25. During the remainder of the year it was lower than that until December 7, and that stage, or higher, continued during the remainder of December, so that all the days when water was 13.0, or higher, were outside of the navigation season, except April 4th, when the water was
2589 just a trifle higher than 13.0. The 88 days mentioned as not occurring within the navigation period, except one, are not consecutive.

Q. Without going through the table in its entirety, I will ask you what the fact is as to whether or not the days when the Riverside gauge showed a certain stage of water in the table given in the record at pages 1396 and 1397, whether or not they were consecutive days to the number given in that table.

Objection on the grounds that witness's testimony is not the best evidence, and that no proper foundation has been laid for the question.

A. For the higher elevations the days are not consecutive. It may be stated that the higher the elevation the more interrupted are the periods.

Objection as not being responsive to the question.

Taking the first year mentioned on the table prepared
2590 by Cooley for 260 days, 11.85 ft. the period when the water stood at 11.85 or higher began on January 23 and continued until May 8, being 106 days. Between May 8 and July 17 there are 69 days when the discharge was less
2591 than 11.85. Beginning with July 17 up to and including August 4, there were 18 days of a stage of 11.85 or over. Following August 4 there were 9 days when the water stood lower than 11.85. From August 14 till September 1 the water stood above 11.85, a period of 19 days. Then 3 days when the water was less than 11.85, the dates being September 2, 3 and 4, and from September 4 until the end of the year the water stood above 11.85, a period of 118 days. There were days in 1887 when the elevation at the Riverside gauge was lower than 11.85, which was the lowest point shown on Cooley's table. 11.85 represents a discharge at Riverside of less than 150 cubic feet per second. An 11.4 reading of the Riverside gauge at that time represented no discharge. The table referred to in Cooley's testimony shows nothing as to the number of days when the elevation was less than 11.85. During 1887 there was no discharge from January 21 to 22, and from June 15 to July 17, a period of 54 days.

Q. Taking the year 1904, where upon Cooley's table it appears that there were 118 days where the gauge at Riverside showed the 11.85 or more,—were those consecutive days?

Objected to as not the best evidence and that no proper foundation has been laid for the question.

2593 The WITNESS (continuing): I am basing my statement upon the gauge readings which were compiled under my direction. They include the year 1904 and were in House Document No. 263. Those days were not consecutive. Column "C" in Cooley's table on transcript 1396 shows 62 days at 13 ft. or over, occurring between February 29 and April 28 inclusive. Cooley's table shows that in 1904 there were 162 days altogether when there was no flow occurring, as follows:

January, 19 days, June 23, July 31, August 20, Sep-
2594 tember 28, October 8, November 8, December 25. During 74 additional days there was a flow of less than 6 inches at Riverside, occurring in January, 4 days, February, 2 days, June 7 days, August 8 days, September 2 days, October 23 days, November 22 days, December 6 days.

2594 The table appearing in the Government case begins in 1887. There was a record of gauge readings for 1886,

continuously from May 15th to the close of the year, in all 231 days. Some of those days, according to the gauge there was no flow in the river at Riverside.

Q. How many?

Objection that as the witness testified the year is not complete, there is no basis for comparison.

A. 124 days when there was no discharge. They were as follows: In July, 5 days; August, 19; September, 14; October, 26; November, 29 and De-
2595 cember, 31. During that period the additional days during which the discharge as shown by the Riverside gauge was less than six inches, were: June, 23; July, 17; September, 2; October, 5; and November 2 days. Total, 52 days. So that of the 231 consecutive days shown in 1886, there were 176 days when there were six inches or less water in the river.

Q. At the foot of Mr. Cooley's table appears the average for the total number of years, for instance, average under column 18, 4.3; average under the column 13.80 feet, 47.6; being the average of the years from 1887 to 1910, for which readings were given. What, if any, value attaches to the averaging of the number of days at which a certain stage prevailed in the river over that period of years?

Objection on the ground that no foundation had been laid for the question.

A. The averages have very little value, they simply indicate the average for a large number of years, but because the days are not consecutive, and that some years may have absolutely no days of that elevation, and another year a great number, they are not of any value as
2596 determining the number of days on which a boat could navigate. A boat could not navigate on an average, and the average is of no value in determining whether or not the boats could navigate during the period of navigation.

Q. Describe the watershed of the Desplaines river, particularly as to the question of whether the same general characteristics prevail or do not prevail in the watershed below Riverside as prevail above.

Objection that no foundation has been laid particularly as witnesses testified that he does not know conditions above Irving Park Boulevard.

A. There was more timber in the upper portion of the watershed in a state of nature than in the lower portion.

Q. To what extent are the gauge readings at Riverside in-

dicative of the conditions of the river below Riverside in a state of nature?

Objection that no foundation has been laid for the question.

2597 A. They are an excellent indication. If you found no water passing Riverside, ordinarily there would be no flow below Riverside until the mouth of the Du Page river, from which there might be a flow when there was none from the Desplaines proper. In some remote cases there might be a contribution from some other of the smaller tributaries, but not likely, as climatic conditions would be similar throughout a watershed of this size.

Q. What substantial effect would a contribution from the Du Page have under such conditions so far as the quantity of the water was concerned?

Objection that no proper foundation has been laid for the question.

A. It would affect the flow only below the mouth of the Du Page; ordinarily very little. I mean that when the Desplaines proper was practically dry there might be 20 to

2598 50 cubic feet per second coming out of the Du Page for a short period on account of local rains in the Du Page watershed.

Q. Is this a fair conclusion: that the watershed characteristics being substantially the same, the conditions which would produce no discharge at Riverside would have the same conditions prevailing down the river?

Objection on the ground that it is a leading question, is in the nature of cross-examination, and no proper foundation laid.

A. Ordinarily, yes.

Motion to strike out question and answer.

Whereupon Woermann's Waterway Report, Riverside gauge readings, 1886, on pages 1433 to 1439, inclusive, was offered in evidence, then withdrawn for completion; it

2599 being agreed that it might be offered in the absence of the witness after submission to Counsel for Complainant, Counsel for Complainant offering present objection that no proper foundation had been laid for the introduction of the table.

The Witness (continuing): This table was compiled

2600 by me from Riverside gauge readings. My tables are prepared from gauge readings at Riverside whether included in my compilation or the Sanitary District table pre-

sented in connection with Cooley's testimony in this case, and they do not represent anything else than what appears in those gauge readings. I have looked up the names of engineers connected with the early surveys of the Illinois and Michigan Canal and specific statements made by them which entered into my conclusions that there would have been no water in the Desplaines river in its natural condition in 1867.

They occur on abstract page 1091 of the State case. I
2601 quote from page 74 of the Canal Commissioners' Report of 1900:

"The River Desplaines when low affords a very inconsiderable quantity of water, but the Calimic River which empties into Lake Michigan about 12 miles south of Chicago, furnishes an abundant supply (320,000 cubic feet per hour) and in every respect, so far as my observation extends, advantageously situated as a feeder. Too much time was necessarily consumed in the survey of the line of the canal to admit of as particular an examination of this river as from the facts collected respecting it, it undoubtedly deserves."

The WITNESS (continuing): That was the report of Mr. Bucklin to the Canal Commissioners of the State of Illinois.

Counsel for complainant requests that a succeeding
2602 portion of the paragraph above quoted, be read by the witness, which request was refused on the ground that the witness is merely testifying as to the specific statements he had in mind and, therefore, was not pertinent.

Counsel for complainant objected to reading of the portion offered because counsel for defendant refused to read portions which immediately followed it, which counsel for complainant claimed explained the passage offered.

Counsel for defendant directed the reporter not to copy in portion requested by counsel for the Government.

2603 On page 1092 of the abstract is a further quotation from the same report (reading):

"The minimum discharge of the River Desplaines is only 60,000 cubic feet per hour. Of course, it is not competent to supply even the lockage (which on this plan cannot be less than that required for the canal) without taking into consideration the loss of evaporation and leakage, which would alone consume at least seven times the quantity of water discharged by the River Desplaines at its lowest stage."

Counsel for complainant reserves objection.

On page 1093 of the abstract of the state case occurs the following paragraph in a letter of Mr. Bucklin:

"The river Desplaines was gauged, at Laughton's Ford, by Messrs. Post and Paul, in the first survey that
2604 was ever made of the route of the Illinois and Michigan Canal, and the discharge found to be 72,000 cubic feet per hour. They also gauged it and the Cache Island, 18 miles below, when they ascertained the discharge to be 117,000 cubic feet per hour. In October, 1829, it was gauged by Dr. Howard, U. S. Civil Engineer, who places the discharge at 96,480 cubic feet per hour. At the same place (Laughton's Ford) it was again gauged by Messrs. Harrison and Guion, on the 8th of August, 1830, and found to discharge 60,000 cubic feet per hour. The Calamic River was gauged by me in the month of September, 1830, and found to discharge estimated at 320,000 cubic feet per hour. It was also gauged by M. Guion, assistant civil engineer, in the service of the United States, about the same time, and the discharge placed by him at 1,033,000 cubic feet per hour. It may be proper to remark here that the fall of 1830 was a season of extraordinary drought."

According to the extract read, Post and Paul found the discharge to be 72,000 cubic feet per hour; that is, 20 cubic feet per second. The discharge at Riverside had a gauge reading of 11.85, being the lowest discharge in the Cooley table, which would be less than 150 cubic feet per second.

2605 Proceeding with my answer, on page 1096 of the abstract, the following passage occurs (reading):

"The past dry season rendered the measuring of the Desplaines almost unnecessary, since, for nearly four months, the tightest dam that could be erected, would not at the point for taking out the feeder, have saved water enough to propel a single pair of ordinary mill stones. Repeated gaugings from the 20th of July to the 22nd of August, and it was afterwards still lower, gave an average of less than the measurement of 1830."

The measurement of 1830 above referred to, was 60,000 cubic feet per hour, or 16-2/3 cubic feet per second. These are all the references I can refer to at present, in the re-
2606 ports of that period. Others occur in later reports. In the report of Col. Wilson, chief engineer of the United States army of December 17, 1867, on page 441, which has

been referred to here in survey for a waterway, occurs the following (reading):

"This canal, from a point eight miles southwest of Chicago, follows the valley of the Desplaines, a tributary of the Illinois, until it forms a junction with the Kankakee river, some 50 miles southwest of Chicago, below which the river is known upon the map as the Illinois. The latter name would have been most appropriate for the Kankakee above that point, as it is the main river, and Desplaines, in low water, contributes to comparatively insignificant quantity of its volume.

The Kankakee supplies water sufficient to make a good slack-water navigation; the Desplaines of itself
2607 does not, and although the direction of the former was such that it was not probable that a favorable connection with Lake Michigan could be made through its channel, yet it was deemed advisable to determine that fact beyond cavil."

Objection reserved by complainant's counsel.

The WITNESS (continuing): On page 442 of the same report, occurs this paragraph (reading):

"There can be no doubt that through this depression there was once an outlet from the lakes to the Mississippi, which was closed by the recession of the waters of the lakes. Even now at the present stage of Lake Michigan its surface is only eight and nine feet below this summit. The Desplaines river, from the depression described, changes its course and runs in nearly a southwest direction until it forms a junction with the Kankakee. The river itself, except in floods, is very shallow, being often reduced in dry seasons to a mere brook, discharging less than 1,000 cubic feet of water per minute. But the valley averages a mile wide, and is terminated on both sides by well marked terraces which become higher and higher as they approach the Illinois. Evidence at every step presents itself that the water, when this was the great outlet of the lakes, extended from bluff to bluff."

2608 Same objection; request that preceding passage be read, in connection with foregoing, denied by counsel for defendant.

The WITNESS (continuing): The last passage referred to 1,000 cubic feet per minute, which would be practically 17 second feet. In the report of Jacob A. Harman to the State

Board of Health, 1901, at the bottom of page 99, occurs the following:

Objected to by counsel for complainant on the ground that Harmon was still alive, and complainant would like the privilege of cross-examination.

The WITNESS (reading):

"The following report embraces the results of a sanitary survey of the Illinois river and its tributaries, begun in 1899. In June and July of that year Dr. John H. Long, chemist of the Board, and the writer, made an in-
2609 spection of the Illinois for the purpose of locating stations for the collection of samples of water for analysis. Following is a brief description of the inspection as given in the advance notes of this report published in 1900.

Beginning at the mouth of the Chicago river—Lake Michigan—there was a slight appearance of sewage, which increased rapidly as the river was ascended, until the north branch was reached, from which point up the south branch to the Bridgeport pumping station the river was a seething, festering mass of decomposing sewage from house and factory, giving up great quantities of noisome gases; the surface of the river in many places having the appearance of a boiling caldron. From Bridgeport down the canal to Joliet it was a stream of ink with a steady current and musty sewage odor. At Joliet the canal water so much exceeded the low water flow of the Desplaines river that the dilution was inappreciable."

Objection that no foundation has been laid; that Harman is still alive and should be produced for deposition and cross-examination.

The WITNESS (continuing): On page 183 of Harman's report occurs the following paragraph:

"All of this data includes the flow from the Illinois and Michigan canal, which is equivalent to .6 of an inch per annum over the entire basin of the Illinois above
2610 Peoria. If this be deducted the run-off would amount to 7.86 inches, or 23.4 per cent. It will be seen that while the average run-off for the upper Illinois basin does not vary materially from other streams in this latitude, that the variation in run-off from year to year and from month to month is very great. From the lowest to the highest in the table given, the lowest in 1895, 3.36, and

the highest in 1892, 13.55, the range in run-off is over 400 per cent. The actual low water flow at Peoria during the last ten years has for days and sometimes weeks been as low as 1,000 to 1,200 cubic feet per second, approximately 600 cubic feet of which has been furnished through the Illinois and Michigan canal by the pumps at Bridgeport; this quantity being sewage from the south branch of the Chicago river, and often being more than half and occasionally as much as three-quarters of the entire flow at Peoria. The effect of a flow through the new drainage channel of 5,000 cubic feet per second or more can easily be imagined from the foregoing data when we understand that the natural flow of the Illinois river at Peoria has apparently been as low as 200 to 300 cubic feet per second.

The flow of the Illinois river at Peoria is made up of the combined flow of the tributaries above, including the sewage from Chicago which reaches the Desplaines river at Joliet by way of the Illinois river and Michigan canal."

That word "river" there is evidently a typographical
2611 error. It should read "which reaches the Desplaines river at Joliet by way of the Illinois and Michigan Canal.'"

"The Desplaines river at Riverside, a few miles above Joliet, goes entirely dry at that point nearly every fall, and for days and weeks at a time there is no appreciable flow. On the DuPage river, which enters the Desplaines a few miles above the junction of the Desplaines and the Kankakee, no data as to the low water flow is at hand, except the discharge measurement taken under my direction in October, 1899, which shows 32.77 cubic feet per second. This flow is greater than that found in the Desplaines on the previous day. The flow in the Desplaines at Riverside was 13.21 cubic feet per second. The waters of the DuPage are added to the Desplaines before they reach the Illinois, so that the natural flow in the Desplaines, where it joins the Kankakee to form the Illinois, at the time of the gaugings referred to were taken, would have been approximately 50 cubic feet per second, while the amount of sewage flowing through the Illinois and Michigan canal was 600 cubic feet per second. Practically all of the flow of the Desplaines river,

as it reaches the Illinois, is, therefore, during dry weather, Chicago sewage."

Same objection reserved to these passages as to the foregoing, and on the added ground that they are incompetent, irrelevant and immaterial; motion to strike out.

2612 The WITNESS (continuing): The report clearly shows that Harman made a sanitary survey for the state, and this data was secured by himself, he having taken a number of discharge measurements. Isham Randolph, who is still alive, is, or was, chief engineer of the Sanitary District of Chicago. I recall a statement in one of his reports to the effect that the entire low water discharge of the Desplaines river could be taken through a six inch pipe.

Objection that it is hearsay testimony.

The WITNESS (continuing): The Internal Improvement Commission for Illinois in 1907 consisted of Mr. Smoldt of Beardstown, Mr. Johnston of Ottawa, Mr. Cooley, who was secretary, and Mr. Randolph who was chairman. The report on its face, seems to have been prepared by Lyman E. Cooley, who sits here next to complainant's counsel.

Q. Have you any public statements of Lyman E. Cooley's that enter into that conclusion?

Objection, not the best evidence.

Defendant's counsel agrees to produce the document.

2614 A. In a paper entitled "Lakes and Gulf Waterway as relating to the Chicago sanitary problem, by L. E. Cooley, dated May 1, 1891, addressed to the Board of Trustees of the Sanitary District, at the time he was chief engineer, on page 52, paragraph 17, occurs the following (reading):

> "From May 13-28, 1887, at Morris, the water was within 2 or 3 inches of the lowest since 1856, and it is doubtful if the land water exceeded 15,000 to 20,000 cubic feet per minute or 250 to 350 feet per second. At least 60 per cent. of the low water volume passing Morris in 1887 came from Lake Michigan by the Illinois and Michigan Canal, and probably one-half of the volume in ordinary low water years comes from this source."

2615 The WITNESS (continuing): Morris is about 12 miles below the mouth of the Desplaines.

Q. What is the relative discharge approximately of the Kankakee river, as compared to the Desplaines river at low water?

Objection that no proper foundation has been laid for the question.

A. In many years the low water discharge of the Kankakee river in a state of nature would have been 8 to 10 times as great as that of the Desplaines. According to the report of Mr. Harmon, which I just read, he estimates the flow of the Desplaines at that time to be about 50 cubic feet per second and that of the Kankakee to be about 400; over 400.

Morris is roughly, 38 miles above the lower end of the Illinois and Michigan canal, and is on that portion of the Illinois intervening between the Desplaines river and the southern or western extremity of the Illinois and Michigan canal.

2616 On page 57 of this same report, paragraph 25 reads as follows:

"Low water determines ruling navigable depths. The long low water period and the extremely small volume of flow at such times, makes it necessary to contemplate the full depth to be relied upon as available for navigation, the same as for the Chicago division; and also to use water from Lake Michigan, even for an exclusively slack water scheme of small proportions. The present small canal has always had to rely on this source down as far as the Kankakee, and even below this point, the natural supply may, at times, be quite inadequate for any considerable commerce. The high water period is altogether too brief and uncertain to possess any availability for navigation greater than will be due to the minimum depths which the project contemplates."

I recall a statement from the Lakes to Gulf Waterway report, that "the Desplaines practically goes dry above Joliet."

Objection, not the best evidence.

The WITNESS (continuing): In reference to my statement that the discharge in cubic feet per second through Joliet to the mouth of the Desplaines represented by the profile line, termed on Cooley Ex. 3, the low water of 1883, which I placed at 800 cubic feet per second, the other data which I can refer to as the basis of that conclusion, other than the Seddon profile prepared for the Sanitary District and heretofore referred to by me, is a profile prepared by Seddon at the close of his 1899 survey while he was employed by the United States, on which he had marked that 1883 profile, as representing a profile of 800 cubic feet per second, based on the

discharge measurements which he took during 1900. This data is in the United States Engineer's office. I saw it Saturday.

Complainant's counsel requests that this Seddon profile of 1899 be produced; and further objects that it is not the
2619 best evidence as to discharge measurement, and asks that all original data upon which it is founded, be produced, after some colloquy between counsel as to the possibility of producing this data.

2620 The WITNESS (continuing): Personally, I see no more reason for looking up the notebooks relating to the Seddon survey, than to bring out the 400 notebooks which I have filled on my surveys.

COUNSEL FOR COMPLAINANT. I want some authoritative data which states in manuscript form over the signature of some engineer, that the discharge of the Desplaines was 800 cubic feet per second. I do this on the ground that, as I understand it, the Seddon profile is not an official profile, and in that respect it differs from all the other profiles.

COUNSEL FOR DEFENDANT. It appears in your case as Cooley's Exhibit No. 3, and is part of the data which he testifies to in his case, and which he relies upon just as much as upon anything else.

COUNSEL FOR COMPLAINANT. We did not use the 800 feet.

COUNSEL FOR DEFENDANT. No, you left that out; you took what appeared there, except that one significant thing.

2621 COUNSEL FOR COMPLAINANT. Because there was no data for that.

COUNSEL FOR DEFENDANT. There was just as much data for that as for anything else you produced in connection with the Seddon profile. There wasn't any of the data that you had for anything else on that profile that was any different than what it was for that 800 cubic feet.

COUNSEL FOR COMPLAINANT. Well, we want that particular data which you lay emphasis on.

COUNSEL FOR DEFENDANT. There, as in other instances, if that rule is to prevail, the large part of your evidence will disappear from this record.

The WITNESS (continuing). At transcript page 1473, Mr. Cooley, referring to the 14 foot waterway project, describes movable dams known as the Chanoine wicket type, where he states:

> "Said dams being removed at times when the stages of water are sufficient to produce navigation without their aid; and when the water is low, said dams are

restored to position, and a series of pools formed, the passage of the dam being effected by a lock, the intention being to form an open river navigation at all seasons of the year when there is sufficient water in the river to produce it."

2622 I prepared the plans and estimates for that project, in consultation with Col. Ernst. The plan proposed was the same in use on the Ohio river which contemplates raising the dam in the spring after the spring floods are over and the ice is out, maintaining them the whole or most of the time during the navigation season, and at the close of the navigation season the dam is dropped so that it will not be damaged or destroyed by the ice during the winter. It stays down until after the spring floods, except where there is an unusual flood during the navigation season, when a portion of the entire dam might be dropped. I have examined Cooley's testimony on this project, and the quotation from House Document 263 appearing on page 1474 of the transcript; the tables appearing on pages 1476 to 1478, and the quotation extending to page 1479, inclusive. They do not refer to the condition of the river in a state of nature, but to its condition as it would exist after the depth had been increased by excavation to give the required 14-foot waterway by increasing the cross-section by enlargement, by excavation; the slopes would be flattened somewhat and the velocity decreased.

Q. Are the velocities appearing in the quotation referred to in Cooley's testimony, computed after the change by excavation, or before?

Objection on the ground that it is not the best evidence.

A. These velocities were computed for the river as it would be if the cross-section was increased after excavation.

2624 Those computations were made under my direction. At Joliet, where reference was made to a short canal, by consulting the profile which I prepared to accompany my report. I recall that the excavation contemplated in the river bed between dam No. 2 and Brandon's road, varied from 5 to 6 feet for the greater portion of the distance. The relative increase in the cross-section over a state of nature at flood stage would be,— The title of this map, which counsel for complainant asks that I identify, reads:

"Profile of the Illinois and Desplaines Rivers from Lockport, Illinois, to the mouth of the Illinois River in four sheets. Made under the direction of a Board of Engineers consisting of Col. O. H. Ernst, Lieut., Colonel
2625 Charles J. Allen (retired January 8, 1904); Major Thomas L. Casey, and Major James L. Lusk (appointed April 26, 1904); all of the corps of engineers, United States Army, by J. W. Woermann, U. S. Assistant Engineer, 1902-1904."

"The distances are given in feet and miles from the United States gauge at Grafton, Illinois."

This particular sheet which I hold in my hand, is a blueprint from the original tracing which was prepared under my direction in connection with those estimates and correctly represents the original tracing.

Whereupon the said blueprint was offered in evidence and marked Woermann's Exhibit 6. (Said exhibit appears in the Appendix at page .....)

2627 The WITNESS (continuing): Being asked again what the relative increase in the cross-section over a state of nature at flood stage would be, will say that at the foot of dam No. 1, the depth at the high water of 1902 was 10 feet. The proposed excavation under my estimate would increase this to 16 feet, or rather, lower the bottom 6 feet. Of course the new depth would not be 16 feet. 8,000 feet below dam No. 1, the depth during the high water of 1902 was about 8 feet, and it was proposed to lower the bottom at that point about 5½ feet.

Q. Referring now to the language of the report, being part of that quoted in Professor Cooley's examination at 1479: "From the preceding investigation it has been decided that the velocities which obtain during extreme high water,
2628 are prohibitive only below the Marseilles and Joliet dams"; I will ask you whether that statement that they are prohibitive only, refers to the condition in a state of nature or after the enlargement of the river as testified to by you just now?

Objection; that no foundation has been laid for asking condition in state of nature, and that the report speaks for itself.

A. That statement refers to the condition after the proposed enlargement.

I have examined Cooley's evidence appearing at transcript pages 1502 and 1503, where he testifies that with certain im-

provements which he has outlined, the depth of the river would be 4½ feet throughout; that is, his testimony in which he says that with clearing out the channel and deepening it at certain shallow points, *i. e.*, the head of Treat's Island, at the foot of Treat's Island, and the mouth of the river, the depth could be improved at very moderate expense so as to be 4½ feet throughout.

2629 Q. What do you say as to whether or not such improvements as he has there indicated, would produce depth of 4½ feet throughout?

Objection that no proper foundation has been laid for the question.

A. In my opinion, a depth of 4½ feet could not be secured in that way, because the United States engineers have learned from bitter experience on the Rock Island rapids and elsewhere that when you lower the bottom in a case like that, your water surface falls with the new bottom, and you do not get the increased depth contemplated at that point. Furthermore, you lower the water surface above those rapids and make trouble there which did not exist previously, so that, as happened at the Rock Island rapids, it becomes necessary to put in submerged sills to again raise the water surface.

Motion to strike out the answer as not responsive, and as incompetent and irrelevant.

The WITNESS (continuing): I am familiar with all of the surveys that have been made, and plans proposed by the government for securing a navigable channel at the points referred to. They all recognize that the only way to

2630 secure a navigable channel at these points, is either by a lateral canal, or by slack-water navigation; that is, building dams in the river itself.

Motion to strike out, on the ground that reports are best evidence.

Q. Has any report of the United States government engineers advised or recommended any project for procuring a navigable channel in those places except by lateral canal or by dam or producing slack-water navigation?

Objection that reports are best evidence, and no foundation has been laid for the question.

A. It has not.

2631 At this point the hearing adjourned to the office of the United States engineer, on the 5th floor of the Federal Building, Chicago, Illinois, where the examination of the witness continued.

2632 The WITNESS. I have before me various drawings connected with the survey of 1899-1900 in connection with the Barlow Board, platted by Assistant Engineer James A. Seddon, which are part of the records of this office. Referring to the portions of them that throw light on the statement that the low water discharge in 1883 was .8 of 1,000, we have first, this profile from Lake Michigan to La Salle, entitled (in pencil marks): "Estimate of March, 1900, 8-foot Channel Profile, Peru to Lockport. Seddon," which shows the
2633 low water line of 1883, and on it appear the words: "Low water discharge equals .8"; which means .8 of 1,000 cubic feet per second. I get my 1,000 from the gauge indicating on one side the reading in feet, and on the other side the discharge in units of 1,000 cubic feet. One thing that shows that, is the estimated low water, with a discharge
2634 of 10,000 from the drainage canal, it being well known that 10,000 cubic feet per second was the contemplated flow of the Chicago Drainage Canal at that time.

Motion; to stike out, after the words "it being well known."

Identifying by description, what I have pointed out, that is the gauge at the mouth of the Mazon river, indicated on the profile by a vertical line with the gauge readings on the one side, and the volumes of discharge on the other; that is what it signifies to an engineer. On one side it is marked "gauge" and on the other side "discharge." That is further confirmed by that high water line of 1892, which as is well known to anyone familiar with the river, is the high water discharge of the flood is about 76,000. In this case it is simply marked 76. I know that to have been the discharge at
2635 that time. Referring to this (another) blue print, marked "Profile of Proposed Waterway, Chicago river to La Salle, Illinois, to Accompany the Preliminary Report of Board of Engineers of March 17, 1900,' signed by 'J. H. Barlow, Colonel; J. H. Willard, Major; Charles D. Townsend, Major, all of the Corps of Engineers, U. S. A.;"
2636 of the survey of 1899-1900, the representation of a vertical line with "discharge" on one side and "gauge" on the other at the Mazon river, represents the same thing which appeared on the last preceding profile referred to. I find there the notations, .8, which to an engineer indicates the low water discharge in the Desplaines river. For some reason which I do not know, one end of this profile has been removed, and therefore, does not extend clear up to Dam No. 1.

Whether the tracing was in two pieces or what, I am unable to state; I cannot find the other end. This end extends up the Desplaines river to the head of Lake Joliet and bears the legend: "Low water discharge .8," and the line underneath it, extending down the river, indicates the low water
2637 line of 1883. The .8 means to an engineer 800 cubic feet per second. In the words: "estimated low water with discharge of 10 from drainage canal," the 10 indicates 10,000 cubic feet per second.

Objection; to the foregoing, on the ground that it is incompetent, irrelevant and immaterial.

The WITNESS (continuing): I have a discharge curve before me. This curve, or any discharge curve, is used to determine what the discharge of the river is, when you know the gauge reading. For instance, at the mouth of Jackson Creek, there is a gauge which has been maintained many years by the Sanitary District; the United States also had one there. I had a gauge reader read a gauge at that point
2638 for me. At the same point the United States Geological Survey has taken many measurements of the river, each being connected with the gauge reading at that particular time. In other words, on this plat each of these points with a little circle around it, represents separate measurements, and from those as a basis, an average line is drawn in and then with that as a standard you can determine what the discharge was at any intermediate reading of the gauge. For example, when that gauge reads two feet, the discharge would be approximately 1,500 cubic feet per second. This particular document bears the legend on the back of it: "Discharge curve, Jackson Creek, 1900." The survey of the river proper, was made in 1899 and the discharge measurements taken in 1900. The legend: "Discharge in thousands of cubic feet per second" along the figures at the lower side of this plat, show the units in which the discharge was indicated. Knowing the discharge measurements at Jackson creek, for instance, you can determine close enough for
2639 all practical purposes, the condition further up the stream without any gauges. When you have certain well established flow lines like the low water of 1883, and certain high water lines, it is a matter of interpolation.

Q. If you find the gauge reading at Jackson creek which was the same as the gauge reading at Jackson creek in 1883, and you find that that was equivalent to a reading of the gauge at 800 second feet passing through the river, what

would that indicate as to what was the volume passing through the river in 1883 at that point, as shown by the low water discharge of the 1883 profiles?

Objection; no proper foundation laid; incompetent, irrelevant and immaterial.

A. It would indicate that the discharge in 1883 was 800 second feet. The profile, together with the discharge curves, show conclusively that the low water of 1883 was 800 second feet.

2640 Objection; that no foundation has been laid for the question; and to the words "conclusively shown."

The WITNESS (continuing): There is another profile platted by Seddon, entitled: "Profile of Water Surfaces Illinois river 1883 and 1889. Hydrograph of 1883 and low water lines;" showing the low water of 1883 on which he has marked in ink; "Low Water of 1883," and he has platted that gauge at the mouth of Jackson creek, which is not on the other one. This profile shows the water surface from Adams Dam to the Illinois Central Railroad bridge at La Salle. Of my own

2641 knowledge of the river, I know that the point shown there where the gauge appears, is the mouth of Jack-

2642 son creek. It is also known as Alexander's gauge. This profile shows that the low water line of 1883 corresponded to a gauge reading of about 1.1, and the discharge curve shows that if extended that would intersect in the neighborhood of what would correspond to a discharge of 800 second feet, or a little over. I am referring to the discharge curve marked on the back: "Discharge curve at Jackson creek, 1900." That line on the map marked "Hydrograph of Low Water of 1883," which I have identified and concerning which I have testified as to what appears at the gauge at Jackson creek, is the line marked "low water 1883." This discharge curve of the reading of the gauge of 1.1 was not drawn down far enough to indicate 800 feet, because Seddon did not have any actual observations that low. It is common practice in such a case to extend it on what would be considered by an engi-

neer a probable line. In this case the line would

2643 go through to zero, because the zero is approximately the low water surface. It would be a line (indicating) which would intersect the 800 foot line at a reading of 1.1 or a little higher.

Objection; to last two maps on the ground that there are no marks of identification upon discharge curve or

upon profile of water surfaces to show who was their author.

2644 The WITNESS (continuing): Replying to the objection, I know that after Seddon completed his studies in connection with that survey, all these maps, discharge curves and profiles were kept in that box (indicating) from the time of the survey until the trial of the state case in 1908. When I was making my survey, studies and plans, I personally went through that box, and know that all those papers were in it. After the office went into large quarters, new cases were made, and these maps, etc., were put into these cases (indicating), and they were altogether in this box, which was known as Seddon's box, just as the box containing Wheeler's data is known as Wheeler's box, and things which were put in there, have never been taken out. These maps came

2645 out of Seddon's box. Recurring to the hydrograph of the 1883 low water line, the figures on the extreme left side of the sheet indicate elevations in feet above Hennepin datum. The evelation of the water surface of Lake Joliet, with a discharge of 800 cubic feet per second, is about 75.2. That level corresponds with the level shown on the hydrograph of 1883, shown by the line marked "low water, 1883" for that portion of the river. The Seddon profile does not show in Hennepin datum, what the elevation of the water in Lake Joliet would be under a discharge of 800 second feet, but it would correspond to the elevation which is given on this profile which represents 800 second feet.

Whereupon the hearing adjourned and reconvened in Room 857 Federal Building.

The WITNESS. Seddon was the United States Assistant Engineer in charge of the 1899-1900 survey, most of the time under the Barlow Board. The first engineer died soon after the survey was begun, whereupon Seddon took charge. He was afterwards employed by the Sanitary District and

2647 prepared the profile shown here. The lines of Cooley Exhibit 3 were taken from the Seddon profile, since they coincide with it, and the Cooley Exhibit says:

"The flow lines are from diagrams prepared by James A. Seddon for Sanitary District of Chicago in 1901-1902."

Completing the list of authorities for the Cooley Exhibit, it says:

Beginning at the beginning: "The bottom and low water line from survey of 1883, as reported by Captain W. L. Mar-

shall in 1889. The data have been compared with that of the United States surveys of 1899-1900 and of 1902-1904, and reduced to the final precise level of the last survey." Though I have testified that the low water discharge of 1883, 800 second feet in a state of nature, would require a reading of the gauge at Riverside of 13.1 feet, or 1.7 feet of water passing Riverside, and that the depth shown on the profile at the mouth of the river was 1.2 feet, a reading of 13.1 feet at the Riverside gauge would not give a boatable depth of 1.2 feet at the mouth of the river, unless it were lucky
2648 enough to keep in the thalweg or line of greatest depth.

Objection; that no proper foundation was laid for the question.

The WITNESS (continuing). I know that it is a matter of luck from my experience in going down the river to this point in a skiff getting high water marks in 1889. We found it impossible to keep in the line of greatest depth, struck boulders, and in one case got aground, and I had to get out and pull the boat off. We endeavored to follow the line of greatest depth.

2649 The water conditions shown by the 1883 profile, were quite similar to those in 1889. A reading at a given point in the river as shown by the profile, would indicate nothing as to the depths at other points in the same cross section; it would ordinarily indicate there was no greater depth. The profile, as a rule, shows the greatest depth as you pass down the river, and that line of greatest depth, not being marked on the surface of the water, it is impossible to follow it.

Q. Referring to Parry Exhibit 2, and particularly the probable flood line over the Chicago divide in the high water of 1892, if a state of nature had existed under those conditions, what have you to say as to what reliance you could place upon that probable or assumed flood line, as being the actual flood line which would have obtained under those conditions?

Objected to on the ground that no proper foundation had been laid for the question.

2650 A. If a flood of that volume had passed over the divide in a state of nature, I would say that the hydraulic elements which affect the volumes of discharge and the elevation of the water surface are so indeterminate that it is impossible to determine that flood with any degree of accuracy.

Q. Do you know how long it took the crest of the flood of 1892 to pass?

Objection that no foundation had been laid for the question.

2651 A. I have examined the gauge readings at Riverside for the purpose of ascertaining the fact, and by reference to them for the flood period of 1892 I find that the maximum reading of 21.35 occurred at 10 p. m. on June 24th. The next morning at 7 the gauge read 20.95, in other words the water fell 4/10 of a foot during the night. During the succeeding 24 hours the water surface fell to 18.70, in other words, an additional 1.25 feet, or a total of 1.65 feet in less than a day and a half. Such conditions as those of 1892 prevail at very infrequent intervals. As to what I mean by "infrequent intervals" the profile which I have prepared to accompany my report of 1905 shows the greatest floods and the dates of them. The greatest flood, according to the gauge records, occurred below Joliet and was in 1902. The next below that in 1904 and next below that in 1892, or, working out an average I would say that the conditions of 1892 would

2652 prevail once in five or ten years. In this case, at page 1908 of the record, Dugan gives the depth of Lake Joliet at 19.6 feet. I have examined the depths of Lake Joliet as appearing on the soundings which were given on the maps prepared under my direction in 1904. Consulting my memoranda I find this maximum depth of 19.6 in Lake Joliet was shown at just three points which were taken close to-

2653 gether. That depth is not typical and was only discovered by platting the soundings for the entire lake. The greatest depth found in the next section upstream was 16.1 feet, and in the next above that 13.3. Proceeding with the sections upstream, the results of my examination were as follows: next, 12.1; next, 10.9; next, 9.6; next, 9.6; next; 8.3; and next 8.4. These are the maximum depths. For example, the last depth given, 8.4, is in section 1486 plus 500. All of the soundings in this section are as follows: beginning on the left, 3.3, 4.0, 4.1, 6.2, 8.1, 8.4, 7.5, 4.6, 4.8, 3.9, 5.1, 4.1, 7.4; with a marshy area along each shore which was not sounded. These figures were taken from one of the maps which accompanied my report, that is, from the map which shows Lake

2654 Joliet, Sheet No. 56. The difference in elevation of the water at the time the depths were taken as testified to by Dugan, as compared to the elevation of 1883 is shown on my profile of 1904, and as to Lake Joliet it was from 1.8 to about 2.2 higher in 1901 than it was in 1883.

Q. Can you give the narrowest places in the river as it is now obstructed?

A. The narrowest place is at Treat's Island under the bridge where the width is 100 feet; at Smith's bridge there are two 90 foot spans and one 60 foot. The most obstructed place at present is at the old Kankakee feeder, where the clear space between acqueduct piers is only about 50 feet, six spans in all. At the C. R. I. & P. Railroad bridge, which is just above the reach selected by Dugan, the width of the river is 200 feet, and it is broken into five sections by piers placed diagonal with the current in such a way that it would be hazardous for a rowboat to attempt to pass between them. At Jackson street the river is blocked by a solid masonry dam.

2655 Objection that the answer is not responsive; is incompetent, irrelevant and immaterial; and that no proper foundation has been laid therefor.

Motion to strike out.

The WITNESS (continuing): In view of these obstructions a rowboat could not pass down the river with safety. In enumerating gauges in the river Dugan recited them in such a way that might convey the meaning that there were five gauges. Alexander's gauge is the same as is referred to in his testimony as being at the mouth of Jackson creek.

2656 Dugan's testimony as to the depth of 8½ feet opposite Alexander's gauge in 1901, is correct, that is, in a pool opposite the gauge. It is possible to determine the flow at the mouth of Jackson creek at any time for which there is a gauge reading, by means of the discharge curves for that section which have been prepared, one by Mr. Seddon, and another by me in connection with my survey, at which time I had all of Seddon's data, his discharge measurements and discharge curves, as well as those taken at the time of the Marshall survey in 1889. I recollect that it agreed with those prepared by me, and remember no discrepancies. The

2657 discharge opposite Jackson street during the low water of 1901, according to my curve was about 3300 second feet.

The map I have is entitled: "United States, showing navigable streams and canals exclusive of Alaska and insular possessions, 1906, the navigable streams being shown by heavy black lines, and the navigable canals by heavy red lines" The notes in the lower right hand corner state that "this map

was compiled in the office of the Bureau of Corporations and is intended to show the streams and canals of the United States now actually used for the purposes of transportation (as nearly as can be thus graphically indicated), and the information so compiled is based on data appearing in the annual reports of the Chief of Engineers, United States Army, reports of State engineers, and schedules of private canal companies received by the Bureau of Corporations." This map shows that the Illinois river is navigable as far north as La Salle, and shows no portion of the river north of
2658 that point. Between La Salle and Lake Michigan it shows the Illinois and Michigan canal for the entire distance, or rather, shows the canal from La Salle to Chicago. It does not connect directly with Lake Michigan and the Chicago Sanitary ship canal from Lockport to Chicago. It shows a navigable waterway from the Mississippi to Green Bay by way of the Wisconsin and Fox rivers and the Portage canal at Fort Winnebago. This map is published by the United States Government in Senate Document No. 325, 60th Congress, first session, better known as the report of the Inland Waterway Commission, appointed by President Roosevelt.

Whereupon said map was offered in evidence and marked "Woermann Exhibit 7." (Said exhibit appears in the Appendix at page ——.)

Objection. Incompetent, irrelevant and immaterial, no proper foundation laid for introduction, or as to authenticity.

2659 Q. Mr. Woermann, from your knowledge and investigation of the Desplaines river and your experience in connection with waterways, are you able to state whether or not the Desplaines river is navigable for the purposes of useful commerce?

Objection. No proper foundation laid for asking the question of this witness.

A. I am.

Q. State what is the fact in that particular.

Objection (as above stated).

A. In my opinion it is not, because the natural low water volumes are too small, and the high water volumes are so infrequent and at such irregular times that they are of no value practically; and also because of the steep slopes, the crookedness of the channel, and on account of the numerous boulders which obstruct the channel.

Q. In your opinion is the Desplaines river navigable for the purposes of useful commerce?

Objection (same as previously stated.)

A. In my opinion it is not. In my professional serv-
2660 ices in connection with the surveys I am acquainted with the sketch of the river from the mouth of the Desplaines to La Salle. I am able to state whether or not, prior to 1900, that stretch of the Illinois river was navigable for useful purposes of commerce.

Q. What was the fact in that particular?

Objection. No proper foundation has been laid for the question.

A. It was not, because of the dam at Marseilles which was not provided with any lock and because of the very steep rapids just below the dam, and because of other shallow
2661 points above and below Marseilles. As to whether or not the Illinois river above Marseilles or above La Salle is now navigable for useful purposes of commerce I would say that the portion of the Illinois river between La Salle and Ottawa was navigable.

Q. What as to the portion between the mouth of the Desplaines and Ottawa?

Objection that no proper foundation had been laid for the question.

A. I would say that the portion between the mouth of the Desplaines and Ottawa was not.

At this point a blueprint of the original profile of the Wilson survey of 1867 heretofore referred to by the witness at transcript pages 2506-2511 (Abst., 1043, 1044), and mentioned as being in the possession of the United States Engineer's office, was produced from that source by counsel for complainant (pursuant to notice theretofore given by defendant's counsel—Trans., 2511; Abst., 1044); offered in evidence by counsel for defendant, and marked "Woermann Exhibit 8." (Said exhibit appears in the Appendix at page .....)

JUDSON F. LEE, a witness on behalf of defendant:

Examination by Mr. Scott.

2663 I reside at 2407 Kedzie boulevard, Chicago. Am 30 years old, and professionally engaged in educational work. I specialize in history. I took my preparatory work

at the high school of St. Charles, Iowa. I went from
2664 there to the Academy of the Des Moines College, Iowa;
and I took four years' college work and completed my undergraduate work at Des Moines College, and took special work at the University of Iowa during one summer. The next year I spent at that university specializing in American history. The next year was spent in special work at that university. From there I went to Sac City, Iowa, where I was assistant principal of the Sac City Institute and instructor in history. In the summer of 1906 I came to the University of Chicago and spent twelve quarters, more than three years of graduate work in which I spent all my time on that line of work, history. From there I went to the Lewis Institute in
Chicago, where I have been teaching history and eco-
2665 nomics about two years. I took my bachelor's degree at
Des Moines College; my master's degree at the University of Iowa; and have finished all my work at the University of Chicago for my doctor's degree, except taking the final examination. In connection with my historical studies have made special investigation and spent more than a year in definite study of Illinois history with special reference to transportation as a factor in developing Illinois. I began that work while the Chicago Harbor Commission was sitting. Professor Merriam, of Chicago University, was secretary of that Commission and asked me to make special investigation with regard to the Chicago Harbor, and to write a history of the harbor with relation to the development that the Government has done upon it. I did that work, delivered my paper to the Harbor Commission and, seeing how the development of lake transportation affected the growth of Chicago, led
me to the larger study of transportation as a factor in
2667 the development of Illinois. That was about three years
ago. My paper on the Chicago harbor was used by the Commission in arriving at their conclusions. Seeing how the work which the Government did in the Chicago harbor had led to commercial development here and brought an influx of immigration from the north, which led immediately to the settlement of a district hitherto unsettled, having been merely a fort, I desired to find out how transportation affected the
rest of the history of Illinois, so I began the study of
2668 the development of Illinois. I first saw how far the
transportation of the lake affected the development of northern Illinois.

Motion to strike out the last statement.

Objection to the witness stating anything but actual facts with reference to what he has done or written.

The WITNESS (continuing): I wrote this thesis, "Transportation as a Factor in the Development of Illinois."

COUNSEL FOR COMPLAINANT. Note an objection to question and answer on the ground that it is incompetent, irrelevant and immaterial, and that may stand generally to this line of examination and I'll not need to note it each time.

COUNSEL FOR DEFENDANT. Yes.

The WITNESS (continuing): The first chapter was on lake transportation, the stimulus to the development of Chicago and the immediate back country previous to 1850. I
2669 found that Chicago was a stimulus for but a small area of Illinois during this period, due to the fact that connections between Chicago and the hinterland were not sufficient to make development possible.

Motion to strike out on the ground that answer is not responsive.

The WITNESS (continuing): In the second chapter I attempted to solve the problem of what connected Chicago with the back country. I developed the history of planked roads as a factor in enlarging the back country or territory from which Chicago received her exports and to which she sent imports coming by lake.

The third chapter is entitled "Railroads in the Prairie Land of Northern Illinois and in the Military District." I had intended to write the history dividing the state arbitrarily, but further study revealed that the river counties differed in their history and development, both in the length of period and in their stimulus from that of the prairie land. I then devoted chapters to the development of the prairie land and to the development of the river section. The third
2670 chapter is devoted to the development of the prairie land of Northern Illinois and the Military District, which is the territory between the Illinois and Mississippi rivers.

The fourth chapter deals with railroads in the prairie of Eastern Illinois east of the Illinois river. Chapters three and four deal with railroads as the transportation factor which developed the prairie land.

Motion to strike out as not responsive.

The WITNESS (continuing): Chapter five is entitled "Transportation in the Upper Illinois River Counties Previous to 1860." That chapter represents considerable time devoted to the study of different factors and agencies of transporta-

tion that gave stimulus to the development of the upper Illinois river counties.

Chapter six deals with the lower Illinois and Mississippi river counties prior to 1860. I trace the development of transportation in these counties as a factor along the
2671 Illinois and Mississippi rivers, but in two or three counties, for example Peoria county, I have followed the smaller rivers, such as the Kickapoo, or Spoon creek, and various other rivers, noting the development in and along the river sections. This I did because I found in the more detailed study of those counties, the distinction which I made in the larger thesis between the river and prairie counties. Development came along the smaller creeks before it came to the prairie land.

Motion to strike out on the additional ground that the book is not a historical work of known and established standing and accuracy, and that reference to the context is secondary evidence.

COUNSEL FOR DEFENDANT. The inquiries are directed solely to the study and investigation of this witness as tending to qualify him to testify upon the early history of the State of Illinois.

The WITNESS. This thesis has not been published. It was prepared two years ago after a solid year's work and
2672 I have worked on it since as time would permit. In its preparation I have gone to all the original sources I can find to throw light on the subject of transportation as a factor in the development of Illinois, and have used the Chicago Historical Library, where I found most of the evidence concerning local history in Illinois, and the libraries of the city, that is, the Crerar, Newberry, Chicago University, and city libraries. About two years ago this thesis was indexed
2673 among historical works and circulated among historians.

In connection with this work I did not have in mind the Economy Light and Power Company's litigation with the State of Illinois or with the United States, having been approached for the first time in connection with the Economy Light and Power Company and this case about a month ago by a Mr. Dixon from your office.

Q. He informed you that Dr. Jamieson, of the Carnegie Institute at Washington, had referred to this paper.

Objection to the question as leading.

A. Yes, sir.

Q. From your investigations in connection with this thesis

and your general study of the history of Illinois, are you able to state generally how the population of the State of Illinois developed, especially in the first instance with reference to the order in which the various sections of the state developed?

Objection incompetent, irrelevant and immaterial;
2674 no proper foundation laid; witness not shown to be qualified as expert in historical matters.

A. Yes, sir.

Q. Have you made any investigation of the influence of rivers upon the development of the population of the State?

Objection; the same. It being understood between counsel that the same objection shall apply to all this line of questions.

A. Yes, sir. The development came in first down along the Ohio river and then from that as the main channel developed the channels that run into the rivers, which led to the development of the southern part of the State first. Southern Illinois had a considerable population before there was any development in the prairie land of northern Illinois.
2675 The settlement and development first took place along the rivers and then on the prairies. First along the Ohio river, then up the Wabash and along the Illinois and Mississippi rivers, and out from these as main channels along the smaller rivers from which later the development of the prairie section took place. Giving in more detail the development of the population on the Illinois river, with refer-
2676 ence to how it extended toward the northeast, the settlement was first on the lower part of the Illinois river, and then extended gradually up the same as transportation along the river was extended. Previous to 1830 there was practically no settlement north of Peoria, and at that time very little around Peoria or the country just below. Up to 1830 there was no settlement at all between Peoria and Chicago, except a few houses. From my study of history and the population and settlement of the United States, I am able to state that the first settlement in populating the
2677 interior of the country, were along the rivers. My authorities for that proposition among historians are: Turner's "Rise of the New West" and Ellen Churchill Semple's "American History and Its Geographic Condi-
2678 tions." She is a historian who has given special study to the development of geographical conditions, and is a reliable authority. Her work was published in October, 1903,

by Houghton, Mifflin & Co., The Riverside Press, Cambridge. In support of my proposition as to the population following the rivers I had in mind a passage on page 251 of this work (which said passage was then offered in evidence) which is as follows (reading):

2679 "The abundance of inland waterways in the East and the paucity in the West has greatly differentiated the economic history of these two sections of the United States. Every country of large extent finds, next to the fertility of its soil, its navigable rivers the most important factors of its early development. The one is fundamental to the production of wealth and the other to its distribution and exchange."

Objection; incompetent, irrelevant and immaterial.

The WITNESS (reading on page 252):

"Early settlement and expansion of population in the United States, falling as it did in a period prior to the rapid development of transportation by means of railroads, and being confined to the well-watered Atlantic slope of the continent, developed, as we have seen in the previous chapters, largely by reason of waterway facilities. Line of river and lake invited and directed the westward movement, distributed the outbound settlers along remote tributaries, and the next year conveyed the produce from the newly opened lands back to the seaboard markets. For every outgoing stream of people to the West, there was a return current of trade,

2680 steadily increasing in amount, variety and value, which moved along these same channels. Later, when railroads were introduced, the waterways remained as the cheap competitor of the steel roads, regulating their freight charges from the lakes to the gulf and from the Atlantic to the ninety-seventh meridian."

Objection; same as preceding objection; it being understood that it shall apply to succeeding excerpts.

The WITNESS (reading pages 255 to 257):

"Abundant waterways therefore mean prevailing water transportation in the early stage of a country's economic development; the larger the size of a country and the greater its distances, so much the stronger its need of inland navigation, the greater the development and the longer the survival of the same. Owing to the

narrow width of the Atlantic plain, its southeastward slope, and the 'fall line' never very far from the coast, the career of our Atlantic rivers as avenues of transportation has been short in period and limited in extent. With the exception of the Hudson they have served only east and west communication. Intercourse between north and south was delegated to coastwise navigation,
2681 which here performed the function of the Mississippi boats in the interior of the land.

The importance of these Atlantic streams was greatest in Colonial days, because, on account of the small sea craft then in use, there was less distinction technically between inland and marine navigation. Furthermore, these rivers being small, have suffered relatively more from that necessary contraction of navigable waterways which has resulted everywhere from the substitution of large steamers for the shallow boats of the early period. Finally, since in all water transportation the cost falls largely to the expense of loading and unloading, the small Atlantic rivers are under the economic disadvantage of the 'short haul.' Hence only those have maintained their importance which, like the Hudson, St. Lawrence, and lower Delaware are navigable to seagoing vessels.

It was in the great valley of the Mississippi that inland waterways proved to be a most powerful economic and political factor. This basin, embracing 1,240,000 square miles, containing 15,410 miles of streams navigable for present large river craft and having therefore a much greater mileage in the day of canoe and pirogue, early exploited its advantages of water communication, all the more because of the rapid expansion of settlement throughout the valley, the increasing distances to be covered, and the sparsity of its population,
2682 which could not bear the expense or even furnish the labor for road-making. In the pioneer days it was downstream travel for the emigrant settler to his new home along the Ohio, the Tennessee, and the middle Mississippi, as later for his produce to the market at New Orleans; but increasing economic development with its more extensive exchanges made an insistent demand for more effective upstream navigation, as for more rapid water communication in general. Hence the introduc-

tion of steam as a propelling power solved the problem of the swift western waters."

In connection with my statement as to the first settling along the rivers in the development of the population of the country, I have in mind a work, entitled "The Settlement of Illinois from 1830 to 1850, by William Vipond Pooley. A thesis submitted for the degree of doctor of philosophy, University of Wisconsin, 1905, Madison, Wisconsin, May,
2683 1908." Pooley took his doctor's degree at the University of Wisconsin and made this special study under the direction of Frederick J. Turner. The work is carefully written and is accepted as authority among historians upon the settlement of Illinois.

Objection (in addition to those made). That the work is not a historical work of known standing and accuracy as those terms are used with reference to historical authorities.

The WITNESS (reading from pages 311 and 312):

2684 "For years one of the greatest problems of the settlers was to find markets. The navigable streams were the highways of communication and here and there along them were towns of considerable prosperity; owing to the fact that the surrounding agricultural regions poured in yearly crops of produce to be shipped down the streams to more advantageous markets. Moreover, it was to these towns that the farmers were obliged to come to obtain their supplies from the eastern cities and by means of the traffic to and fro, the towns gained in prosperity. Few, indeed, and small were the inland towns for the reason that they afforded no markets. To the lack of markets, then, can be traced the internal improvement excitement which struck the state in 1836. Cost of transportation from Galena around by way of the Mississippi and the Ohio to the East was excessively high and it was too far to cart such a heavy product as lead across the state to a lake port. The southern farmers likewise were obliged to cart to a river port; those of central Illinois looked to Chicago for a market, often going one hundred or one hundred and fifty miles with farm produce at the cost of much time. Internal im-
2685 provements were meeting with success in other parts of the land, so it was natural that they should be attempted in Illinois, where markets were in great demand.

The succeeding periods show like development and it is highly probable that little by little the prairies would have been assimilated, but it would have been a slow progress, owing to the difficulties of transportation and of finding markets. When 1850 came, the northern part of the state presented a peculiar bird's eye view—strips of comparatively closely settled country stretched away in every direction, indicating the timber tracts, while between them was the unoccupied prairie. Here lay the work for the railroads, and these, by practically annihilating distances, created markets by bringing the producer and consumer together, gave the settler something to cling to when he swung clear of the timber; in short, gave him the key to the prairie.

Exceptions are, of course, to be found to the general laws controlling the settlement of the prairies, but they are not frequent enough to overthrow these laws which seem to be the basis of the occupation of northern and eastern Illinois.

The object of the discussion is to show the progress of settlement on the Illinois prairies, paying special attention to the influence of physiographic conditions, to lines of communication and to the change which took
2686 place so abruptly in the character of the pioneer class of the West, and to show the differences existing between the pioneer of the woodlands and the pioneer of the prairie lands. Causes for the settlement are to be noted, as well as such settlements as appear to be exceptional in character and illustrative of some peculiar phase of the westward expansion."

The WITNESS (continuing): The heading of the chapter from which the excerpt just read is taken is "The Military District, which comprised all the territory between the Illinois and Mississippi rivers." Continuing I read from a chapter entitled "Illinois before 1830," pages 326 and 327 (reading):

"The process of settlement in this part of the state was identical with that of the portions already studied. The two great rivers served as connecting lines with the older settlements of the south and along the tributaries we find the first settlers establishing themselves. Peoria, the oldest town in this part of the state, had been deserted in the closing years of the eighteenth century. In 1813 Ft. Clark had been built and in 1819 the first per-

manent settlers came to Peoria. In 1825 the county was organized and had at the time a population of 1236
2687 which included all the settlers of the northern part of the state.

The counties at the southern end of the tract (Calhoun and Pike) are broken and hilly near the rivers. Gilead in Calhoun county and Atlas in Pike county both situated in the timber within convenient distance from the river but away from the unhealthy bottoms were the only villages in 1830. Along the creeks of Schuyler and Brown counties, Kentuckians, Virginians, Pennsylvanians, Carolinians and Tennesseeans settled beside men from Indiana, Ohio, Missouri and Illinois. Lewiston and Canton in Fulton county completed the list of settlements of importance on the eastern side of the Tract.

Adams county was the most populous district on the Mississippi river north of the mouth of the Illinois and Quincy was the largest settlement. Venus in Hancock county was the only other settlement of note in 1830. Few settlers had gone to the interior.

In all there were about 13,000 people in the Military Tract in 1830 and by far the greater percentage were close to the great rivers forming the boundaries of the district."

On pages 328 and 329 (reading):

"Along the Ohio river and its numerous tributaries on the eastern side of the state was a comparatively densely settled area. Between the projecting ribbons of
2688 settlement which lined the streams were the prairies as yet hardly occupied. The same is true of the Western side of the state along the Mississippi. The Illinois river furnished the road to central and northern Illinois.

The pioneer of the Illinois frontier was still of the hunter type. He was primarily a woodsman who had come to the new country with his rifle, axe and hunting knife prepared to attack the problem of the frontier in the same way his ancestors had attacked it in Kentucky and Tennessee generations before. He changed a little before 1830, for his cautious contact with the small prairies of the South gave him little real capital with which to attack the broader expanses of the North. Practically shut off from the prairie, he followed the woodlands until the outbreak of the Black Hawk War in 1832, which date marks the beginning of a sudden and sharp

transition in pioneer characteristics. Before 1832 the settlement of the state was only a continuation of pioneer days in the older states. Now a new problem confronted the tide of pioneers who were crossing the continent. On the wide treeless expanses of eastern and northern Illinois were to be solved the problems which gave rise to a new class of frontiersman—the prairie pioneers."

The WITNESS (continuing): This is under the Military Tract, Chapter 6, pages 399 and 400 (reading):

2689 "While the large river forming the eastern boundary of these counties was the highway for communication with the rest of the country, the first settlers did not congregate here. A few grouped themselves near the river to take advantage of what little commerce there was, but as a rule the settlers, being interested in agriculture, preferred to leave the river bottoms of the large streams and take the timber land along the smaller ones, for the small prairies adjoining relieved the pioneers of the labor of making clearings. Moreover, the high ground back from the rivers seemed more healthful, for in the bottoms fever and ague were enemies greatly feared."

Page 505, the title of the chapter is "Foreign Element in the Population of Illinois." (Reading):

"When the Americans first came to Illinois the French settlements along the American bottom and at Peoria were practically the only ones in the territory. The Americans with their new ways and ideas of government and law caused such wonder and even distrust among the simple people that many moved away. Those remaining assumed by degrees the American manners and language, but became of less importance politically and socially as the American settlers increased in number.

2690 Few, indeed, were the French immigrants before 1830 and at no time during our period did the annual immigration to the United States number 10,000 save in the years 1846 and 1847. During the early days in the northern part of the state lone French-Canadian cabins were often found along the rivers, inhabited by traders in the employ of the American Fur Company."

Pages 572 and 573. The head of the chapter is "Conclusions—a resume." (Reading):

"Lines of transportation and communication influenced the character of the settlement of the various dis-

tricts of the state. On the outskirts of the Great Prairie of eastern Illinois, in the timbered portions, were found the pioneers of the southwestern states, who had come by the southern wagon roads to this district. Later the men from Ohio and Indiana filled up the remaining spaces. They, too, to a great extent, came by various wagon roads and finding good land in this region were content to settle upon it. In the middle Illinois river counties the same thing is noticeable as in the southern portion of the Military Tract. Contact with the central Illinois counties, which were populated to a great extent by Kentuckians, influenced the population of these districts. Going further to the north we find in the upper Illinois river counties and the valleys of the Fox and Rock rivers, the New Yorkers and New Englanders. They had come by the easiest road, over the Great Lakes,
2691 and had settled in the northern counties before the southern stream had reached the northern timber tracts. Across the state in the lead region a community with southern sympathies was planted. The Mississippi river was the highway of commerce and travel for this part of the state and the southern cities were the outlet of its commerce. As a consequence southern influences were brought to bear directly on the inhabitants of the district. Many of the settlers were southerners by birth and this fact combined with the close connection with the South by way of the river tended to give the entire region a marked southern tone.

The importance of communication is shown by the fact that the chief cities, Quincy, Peoria, Rushville, Peru, Ottawa, Joliet, Elgin, St. Charles, Rockford and Galena were on or near the rivers. Chicago and Waukegan were on Lake Michigan. Many of the small inland villages, through the influence of the railroads, grew to be of importance after 1850."

2692 I next refer to "A History of Illinois" by Governor Thomas Ford, "from its commencement as a state in 1818 to 1847, containing a full account of the Black Hawk War, the rise, progress and fall of Mormanism, the Alton and Lovejoy riots, and other important and interesting events, published by S. C. Griggs & Co., 111 Lake street, New York: Ivison and Phinney, 1854." Ford, being an actor in the times of which he wrote, was prejudiced on its political phases, but with respect to transportation and the conditions

of settlement, it would be accepted among historians as a reliable authority.

Motion to strike out as not responsive.

2693 Objection. Historical character and standing of this work has not been so established as to admit of reading the excerpts.

The WITNESS. I read from chapter 1, entitled "Petition of the Territorial Legislature to Congress to be Admitted into the Union," and from the particular part relating to the enlargement of the state boundaries, pages 22 and 23

2694 (reading):

"But there were other and much more weighty reasons for this change of boundary, which were ably and successfully urged by Judge Pope upon the attention of Congress. It was known that in all confederate republics there was danger of dissolution. The great valley of the Mississippi was filling up with a numerous people; the original confederacy had already advanced westward 1000 miles, across the chain of mountains skirting the Atlantic; the adjoining states in the Western country were watered by rivers running from every point of the compass, converging to a focus at the confluence of the Ohio and Mississippi at Cairo; the waters of the Ohio, Cumberland and Tennessee rivers carried much of the commerce of Alabama and Tennessee, all of Kentucky, considerable portions of that of Virginia, Pennsylvania and New York, and the greater portion of the commerce of Ohio and Indiana, down by the Point at Cairo, situate in the extreme south of Illinois, where it would be met by the commerce to and from the lower Mississippi with all the states and territories to be formed in the immense country on the Missouri and extending to the head waters of the Mississippi. Illinois had a coast of 150 miles on the Ohio river, and nearly as much on the

2695 Wabash; the Mississippi was its western boundary for the whole length of the state; the commerce of all the western country was to pass by its shores, and would necessarily come to a focus at the mouth of the Ohio, at a point within this state, and within the control of Illinois, if, the Union being dissolved, she should see proper to control it. It was foreseen that none of the great states in the west could venture to aid in dissolving the Union, without cultivating a state situate in such a central and commanding position."

COUNSEL FOR COMPLAINANT. All this goes in under the same objection.

Page 38:

> "In the year 1818 the settled part of the state extended a little north of Edwardsville and Alton; south along the Mississippi to the mouth of the Ohio; east, in the direction of Carlisle to the Wabash; and down the Wabash and the Ohio, to the mouth of the last named river. But there was yet a very large unsettled wilderness tract of country, within these boundaries, lying between the Kaskaskia river and the Wabash; and between the Kaskaskia and the Ohio, of three days' journey across it."

2696 In connection with my statement as to population following the rivers, etc., I also have in mind the Peoria Register and Northwestern Gazetteer, Peoria, Illinois, of Saturday, September 28, 1839, published at Peoria, and a copy of which I have before me, obtained from the Chicago Historical Society Library, in a volume labeled, "Peoria Register, April, '37, to November, '39." This newspaper contains a great deal of material as to the conditions of Peoria county and matters of general interest to the people at that time, and is cited by historians for reference as good authority on conditions then existing. This is the original copy of the edition of that day. It would of course

2697 have to be used as any other paper is used intelligently by historians. The particular extract I refer to is as follows (reading):

> "The inland trade is very considerable and must every year become greater. Many retail purchasers now come from Mercer and Henry counties, some of them a distance of forty miles. From Iowa territory opposite, the trade is cut off by the flourishing town of Davenport, which, like Stephenson, is growing rapidly. The business of Stephenson must be greatly increased from the filling up of the Rock river country, of which it is the outlet, and the improvement of the navigation of that stream. It may have a rival in Rockingham (Iowa) and directly opposite the mouth of the Rock river; but its citizens do not seem to apprehend any drawback to its prosperity on that score."

It is taken from an article headed "Notes on Northern Illinois," by the editor of the Register and Gazetteer,' Stephenson, Rock Island County (reading):

"Arrivals of steamboats from St. Louis during the business season average one a day. In the week in
2698 which I was there in April there were eight arrivals. They all continued up to Galena."

I have another reference entitled "The Territorial Governors of the Old Northwest, a study in territorial administration by Dwight G. McCarty," published at Iowa City, Iowa, 1910, by the State Historical Society of Iowa. It is one of the carefully prepared studies on Western history. I refer to page 15, a chapter entitled "The Old Northwest" (reading):

2699 "To the thirteen colonies clustered on the Atlantic seaboard the 'western country' was a wild, unexplored region—a vague margin on a well-known map. But this country, later known as the Old Northwest, had a physiographic unity of its own. Comprising the region northwest of the river Ohio, it was bounded on the East by the Alleghany Mountains, on the West by the Mississippi River, and on the North it found its natural limitations in the great lake region. Thus it embraced a beautiful portion of the Mississippi valley, with moderate temperature, abundant rainfall, fertile soil well adapted for agriculture, and rich mineral resources. It was a level plain covered with luxurious forests and broad prairies of waving grass, abounding in game.

2698 The great lakes at the North, the large rivers that formed its boundaries, and the numerous tributary streams that flowed through this country were admirable water highways which were of the greatest assistance to the pioneer in his long journey through the wilderness. They also served as a much needed means of communication and formed an avenue for the transportation of supplies. But they likewise furnished a ready approach for wily enemies and made the frontier, always exposed at best, doubly difficult to defend."

Further in connection with the use of the rivers by early settlers I refer to "Benton's Wabash Trade Route. John Hopkins University Studies in Historical and Political Science (edited 1882-1901, by H. B. Adams) J. M. Vincent, J. H. Hollander, W. W. Willoughby, Editors. Series XXI. Nos. 1 and 2. The Wabash Trade Route in the Development of the old Northwest by Elbert J. Benton, Fellow in His-
2700 tory in John Hopkins University, Baltimore, The John Hopkins Press, January-February, 1903." This is one

of the studies made under the faculty of John Hopkins University by a man holding a Fellowship, and is regarded among historians as good authority.

Objection. Incompetent, irrelevant and immaterial, and that the work is not one of recognized standing and accuracy among historians.

The WITNESS (reading, page 91):

"It is not the volume, but the fact of any trade and
2701 communication at all that is significant. The movement of merchandise for Indian barter and of the inhabitants between trading posts and missions was obviously essential to any economic progress or to any centralized political system.

Such routes were immensely more important in the era that preceded the construction of railroads than in the years since these have, in a measure, overcome this influence of physical barriers. A century or more ago, a river or a sea coast was a boon of great value to a country far beyond their present significance. The physical geography of the great valleys is the key to the French method of occupation in America. Its great interlacing waterways drew the hardy adventurous voyagers ever farther inland until a great empire was held under an attenuated colonial system. These nature-made canoe paths invited the settler to the less arduous, more romantic life of the trader instead of the planter. The sturdy husbandry of the English colonies became with the French the courier de bois.

When the English came to possess the greater interior territory and to plant homes in the place of the trader's post and the priest's mission, the value of the commercial routes increased rapidly. Elsewhere it has been shown that the Wabash and Maumee rivers, connecting a chain of trading posts and settlements (Foot note 9: Detroit, Fort Miami, Quitanan and Vincennes), were in continuous use by the English in the brief period in
2702 which they possessed that territory. The British occupation of the frontier posts for many years after the Revolution and the hostility of the neighboring Indians, doubtless due in part to the instigation of emissaries from the English posts, turned the westward immigrant away from the lake region for many years. Indeed, with the American Revolution the Wabash ceased for a long period to exert any considerable influence in a

political sense, limited as the trade must have been to the trapper and fur dealer. Other channels took its place in directing the course of immigration and the rising of commerce. The bulk of traffic moved by Pittsburgh to the Ohio Valley until the construction of the Wabash canal gave this route once more its former prominence."

(Page 106): "A similar revolution took place within the individual states of this group, making them face to the north rather than the south in industrial structure as well as in business interests."

Referring to the context I note that he says, page 103:

"Again by tracing the interior eastbound commerce of the Erie canal farther inland it becomes easy to make complete the chain of transportation that prevailed in this period."

By "this group" he evidently refers to the area on the North.

(Reading, p. 103):

2703 "A similar revolution took place within the individual states of this group, making them face to the north rather than the south in industrial structures as well as in business interests. In 1830 five-sixths of the population of Indiana was in the southern portion along the Ohio valley and on the lower Wabash. By 1840 the frontier had been pushed northward all along the line and particularly up the Wabash valley. Ten years later shows a more equal distribution of population over the state, so that the density in the region fed by the canal is about as much as the older south portions. The map of 1860 shows a population on the Wabash of 45-90 per square mile while along the Ohio it is but 18-45. This movement in the density of the population to the north is graphically shown in the census atlas of 1870.

At the outset Virginia and Kentucky immigrants entered the state from the south, and settled along the southern valleys, regarding the northern portion of the state as a sort of 'terminating point of habitancy.' "

2704 (Reading, page 90): "From whichever gateway the settler entered, he always found some valley or some navigable waterway to invite him to push onward."

The WITNESS (continuing): I have also a reference, entitled "Historic Highways of America," Volume 7, "Portage Paths. The Keys of the Continent. By Archer Butler Hulbert. With Maps. The Arthur H. Clark Company, Cleveland, Ohio, 1903."

The author has done much work in western history and written for popular purposes; the work does not rank with those of Turner or Semple, to which I have referred, nor to earlier works which are more authoritative. Neither would I say that Benton's work is of the same standing as those of Turner or Semple.

2705 A historian would take Hulbert as suggestive; with relation to the point on which he is writing it would be conscious evidence. He knows more about that phase of the work than other phases because he has written extensively on portage paths and historic western highways.

Objection on the ground the general already given, heretofore stated, and on the further ground that the testimony of the witness disqualifies the reference.

The WITNESS (continuing): Writing about the Cumberland National Road across the Alleghenies by the United States Government, he says, on page 77:

2706 "In the Act passed by Congress enabling the people of Ohio to form a state we read: 'That one-twentieth of the net proceeds of the lands lying within said state sold by Congress shall be applied to the laying out and making public roads leading from the navigable waters emptying into the Atlantic, to the Ohio.' The Commissioners appointed according to law by President Jefferson surveyed the territory through which the road should pass and met at Cumberland, Maryland, for consultation. In their report of 1806 they said: 'In this consultation the governing objects were:

1. Shortness of distance between the navigable points on the eastern and western waters.

2. A point on the Monongahela best calculated to equalize the advantages of this portage in the country within reach of it.

3. A point on the Ohio river most capable of combining certainty of navigation with road accommodation; embracing, in this estimate, remote points westerly, as well as present and probable population on the north and south.

4. Best mode of diffusing benefits with least distance of road."

I omit then to the middle of page 80, where he says:

"Thus it is clear that our one great national turnpike was, in reality, a portage path. Upon this same general principal many of our first highways were built, in an

era when inland water navigation, on canal and river, was considered the secret of commercial prosperity."

2707 I have in hand a book, entitled "The American Nation. A History. Volume 14. Rise of the New West, 1819-1829. By Frederick Jackson Turner, Ph. D., Professor of American History in the University of Wisconsin. With Maps. New York and London. Harper & Brothers, Publishers, 1906."

Professor Turner is now of Harvard University. I refer to pages 74 and 75 (reading):

"The maps of the United States census, giving the distribution of population in 1810, 1820 and 1830, exhibit clearly the effects of the defeat of the Indians, and show the areas that were occupied in these years. In 1810 settlement beyond the mountains was almost limited to a zone along the Ohio river and its tributaries, the Cumberland and Tennessee. In the southwest the vicinity
2708 of Mobile showed sparse settlement, chiefly survivals of the Spanish and English occupation; and along the fluvial lands of the eastern bank of the lower Mississippi, in the Natchez region, as well as in the old province of Louisiana, there was a considerable area occupied by planters.

By 1820 the effects of the war of 1812 and the rising tide of westward migration became manifest. Pioneers spread along the river courses of the northwest well up to the Indian boundary. The zone of settlement along the Ohio ascended the Missouri, in the rush to the Boone's Lick country, towards the center of the present state. From the settlement of middle Tennessee a pioneer farming area reached southward to connect with the settlements of Mobile and the latter became conterminous with those of the lower Mississippi.

By 1830 large portions of these Indian lands, which were ceded between 1817 and 1829, received the same type of colonization. The unoccupied lands in Indiana and Illinois were prairie country, then deemed unsuited for settlement because of the lack of wood and drinking-water. It was the hardwoods that had been taken up in the northwest, and, for the most part, the tracts a little back from the unhealthful bottom-lands, but in close proximity to the rivers, which were the only means of transportation before the building of good roads. A new
2709 island of settlement appeared in the northwestern portion of Illinois and the adjacent regions of Wisconsin and

Iowa, due to the opening of the lead mines. Along the Missouri valley and in the Gulf region the areas possessed in 1820 increased in density of population. Georgia spread her settlers into the Indian lands, which she had so recently secured by threatening a rupture with the United States."

In my examination of the history of the population of Illinois I am able to state what is the fact as to the use of the rivers by early settlers where they were capable of such use in coming into the country and transporting their produce and supplies.

Q. What was the fact in that connection?

Objection. Incompetent, irrelevant and immaterial; witness not qualified to speak on that phase of the subject.

2710 A. Wherever possible they came in by way of the rivers, settled near the rivers and thereafter used them as highways of transportation.

Q. In your study and investigation of the history and historical records, did you find any records of the use of the Desplaines, by early settlers either in bringing in themselves or their families, or for the purpose of transportation of produce or supplies?

Objection. Same as preceding.

A. I never have. I have made an investigation with the view of determining the fact as to whether there was any such use and have found no such record. Referring to commerce at and from Chicago in the early part of the nineteenth century I have made an investigation for the purpose of ascertaining the conditions of settlement in Chicago and Northern Illinois in the early part of the nineteenth century, and

2711 I now refer to such histories or other publications as throw light upon that problem. I have in mind a work, entitled "Incidents and Events in the Life of Gurdon S. Hubbard. Collected from Personal Narrations and other Sources. and arranged by his nephew Henry E. Hamilton, 1888," which is the same work referred to by Professor Alvord in his testimony. I refer to the portion wherein Hubbard describes Chicago and the territory north as he saw it in 1818 (reading, page 36):

2712 "On the east side of the fort the river was from four to five hundred feet from the pickets, and a part of this distance was a low, sandy beach where rude wash houses

had been constructed, in which the men and women of the garrison conducted their laundry operations.

Just east of the road and adjoining the fence running east to the river was the Factor House, a two-story, squared log structure, enclosed by a neat split-picket fence. This building was occupied from 1804 to about the year 1810 by a Mr. Jonett, United States Factor, and by the west side of the road, adjoining the government garden in a picket fence enclosure, was the grave of his wife. At the second construction of the fort he was succeeded by John Dean.

For a distance of a quarter of a mile from the Factor House there was no fence, building or other obstruction between the Government field fence and the river or lake. Another house of hewn logs stood 1200 or more feet from the road, and back of it flowed the Chicago river, which, as late as 1827, emptied into Lake Michigan at a point known as The Pines, a clump of a hundred or more stunted pine trees on the sand hills about
2713 a mile from the fort.

On the edge of the river, directly east of this house, and distant about four hundred feet, stood a storehouse of round logs owned by the American Fur Company and occupied by its agent, Mr. John Craft, who erected it. This house was surrounded by a rail fence, and after Mr. Craft's death was occupied by Jean Baptiste Beaubien.

Adjoining this storehouse on the south was the fort burying ground. The east line of the Government field extending to about this point, and thence west to the south branch of the river. These, with the addition of a log cabin near the present Bridgeport, called Hardscrabble, a cabin on the north side occupied by Antoine Ouilmette, and the house of Mr. Kinzie, comprised all the buildings within the present limits of Cook County."

My next historial reference in connection with this matter of early population is Ford's History of Illinois, which I have heretofore referred to in my testimony.

Objection same as previously interposed to excerpts from this work.

2714 The WITNESS (reading, p. 38):

"In the year 1818 the settled part of the state extended a little north of Edwardsville and Alton; south, along the Mississippi to the mouth of the Ohio; east,

in the direction of Carlyle to the Wabash; and down the Wabash and the Ohio to the mouth of the last named river. But there was yet a very large unsettled wilderness tract of country, within these boundaries, lying between the Kaskaskia river and the Wabash; and between the Kaskaskia and the Ohio, of three days' journey across it."

Page 102 of the same work, chapter 4, "The Extent of Settlement in 1830. Election for Governor that Year," are some of the headings of the beginning of the chapter (reading):

2715 "The population of the state had increased by the year 1830 to 157,447; it had spread north from Alton as far as Peoria, principally on the rivers and creeks, and in such places there were settlers sparsely scattered along the margin of the Mississippi river to Galena, sometimes at the distance of an hundred miles apart; also on the Illinois to Chicago, with long intervals of wilderness; and a few sparse settlements were scattered about all over the southern part of the military tract. The country on the Sangamon river and its tributaries had been settled, and also the interior of the south; leaving a large wilderness tract yet to be peopled between Galena and Chicago; the whole extent of the Rock river and Fox river countries, and nearly all the lands in the counties of Hancock, McDonough, Fulton, Peoria, Stark, Warren, Henderson, Knox, Mercer, Henry, Bureau, Livingston, Champaign, Pladd and Iroquois comprising one-third of the territory of the state. As yet but a few settlements had been made anywhere in the open-wide prairies, but were confined to the margins of the timber in the vicinity of rivers and streams of water."

I also refer to the Chicago Magazine of the West as
2716 it is, Volume 1, 1857, No. 1. The work as contained in this volume was published in 1837. It is devoted particularly to Chicago. As an authority it would be used with caution as it is not purely a primary source, being based upon other references from which it gets its authority. The value of particular statements is cumulative and depends upon whether or not they are corroborated by other sources,
2717 it would be one line of evidence and lead to a conclusion. I refer to page 38 (reading):

"At the time of Mr. Brown's arrival in the state, its

population was not over 40,000; and none or next to none of them lived north of the present limits of Bond county. When he came to this city it was a village of about two years' growth and contained about 2000 people. All northern Illinois was a wilderness, and two years later the whole north half of the state was included in one Congressional District, and sent Hon. J. T. Stewart, of Springfield, to Congress."

The time of Mr. Brown's arrival in this state is fixed on page 37 as December, 1818.

2718 On page 37 it says:

"Mr. Brown removed to Chicago with his family in October, 1835, having been appointed cashier of a branch of the State Bank of Illinois, which had been created here in the Winter of 1834."

Objected to as incompetent, irrelevant and immaterial.

The WITNESS (continuing): I also refer to Schoolcraft's Travels in the Central Portion of the Mississippi Valley. Performed under the Sanction of the Government in the year 1821. By Henry R. Schoolcraft, U. S. I. A., etc., New York. Published by Collin & Hannay, 230 Pearl Street, J. & J. Harper, Printers, 1825." This is the same Schoolcraft re-

2719 ferred to in this case by Professor Alvord (reading, p. 310):

"The present settlements, we speak of those on the immediate banks of the river, are very thin, scarcely deserving the name. If the definition of Dr. Johnson be applied here (and it is the only definition with which we are acquainted) that the characteristic feature of a house is the having of one story over another, there is not probably a house on the banks of the Illinois. Of huts or dwellings with only one floor, there is a limited number."

2720 The first sentence refers to the Illinois river. He is speaking of the year 1821. My next reference is "Personal Memoirs of a Residence of Thirty Years with the Indian Tribes on the American Frontiers, with brief notices of Passing Events, Facts and Opinions. A. D. 1812 to A. D. 1842. By Henry R. Schoolcraft, Philadelphia. Lippincott, Crambe & Co., successors to Grigg, Elliott & Co., 1851" (reading, p. 68):

"We proceeded in our canoe up the river Illinois to the Rapids at what is called Fort Rock or Starved Rock,

and from thence, finding the water low, rode on horseback to Chicago, horses having been sent, for this purpose, from Chicago to meet us. There was not a house from Peoria to John Craft's four miles from Chicago."

My next reference is Childs' Recollections, Wisconsin Historical Collections, Volume 4, page 162, heretofore re-
2721 ferred to by Professor Alvord. The narrative concerns a trip to St. Louis, up the Fox, down the Wisconsin, down the Mississippi and then up the Illinois in the year 1821 (reading, p. 163):

"I saw but one house from the mouth of the Illinois to Fort Clark, where Peoria now is, at which latter place one French trader resided.

There were at this time but two families residing outside of the Fort at Chicago, those of Mr. Kinzie and Col. Beaubien."

2722 In connection with the population of Chicago and vicinity early in the nineteenth century, I cite again the 1825 Edition of Schoolcraft's Travels in the Central
2723 Portion of the Mississippi Valley. The chapter is headed "Peoria Lake. Indian Village. Traits of the Pottowattomies," etc. (reading, p. 316):

"We pursued our voyage without interruption from rapids, and without detention from settlements. There is not a white habitation between Fort Clark and Chicago, nor would the traveler be led to presume from present appearances, that the French had built forts and erected chapels in this region of country more than a hundred years ago. It is not certain where Fort Crevecoeur stood, though it appears probable it was near the lower part of Peoria Lake."

My next reference is to the Galena Advertiser for October 5, 1829. In the volume which I hold in my hand, entitled
"Miner's Journal and Galena from 1828 to 1833," which
2724 volume is the property of the Chicago Historical Society Library. This was a paper published from about 1828 to 1833 and includes the Miner's Journal published at Galena or Fever River, and the Galena Advertiser, also the Galenian, the latter for the year 1832. These are the original files of the paper for that period. This excerpt seems to be an editorial (reading):

"A little more than two years ago this town was first surveyed and laid out in streets. A few log cabins only, then distinguished it from the surrounding wilderness.

2725 Since that time, the rapidity of its growth has been unexampled in this, or any other country. Spacious warehouses have been erected, whole streets have been built up, as it were in a day. A compact town, a mile in length, now bursts upon the astonished view of the traveler who ascends the Mississippi; having left the last village 400 miles behind. And he who travels by land, after leaving the little village of Peoria, on the Illinois River, passing alternately, forests and prairies, for the distance of 170 miles, sees no trace of civilization, all is rude and wild; and uncultivated, just as nature fashioned it. When crossing the high hills in its neighborhood, he comes, at once, upon the village of Galena. The size of it, the number of good buildings and the almost magic rapidity with which it has risen, and the remoteness of its situation, excites surprise and admiration in every visitor."

My next reference is "Transactions of the Illinois State Historical Society, 1908, No. 13, page 141." The title page reads: "Publication No. 13 of the Illinois State Historical Library. Transactions of the Illinois State Historical Society, for the year 1908. Ninth Annual Meeting of the Society, Springfield, Illinois. January 30-31, 1908. Published by authority of the Board of Trustees of the Illinois State Historical Library, Springfield. Illinois State Journal
2726 Company, Printers. 1909." I read from a paper entitled "Chicago as It Was and Is," by Edwin O. Gale, who came here at an early date and spent his life here and is now living, I believe, in Oak Park, Illinois. Besides this he has written a book on early Chicago. He is not a trained historian, but as he is writing of conditions existing at the time he lived here and concerning which he knew, his writings would be accepted by historians as an authority on the facts that he presents, although his conclusions might not be accepted as those of a trained historian would be. (Reading, p. 141):

"But to return to the advancement of Chicago and vicinity. Schoolcraft, who attended the Indian council in 1821, in the north side grove, opposite, the fort as a
2727 protection, states that 'all the white men living between Chicago and the Mississippi as far north as Green Bay were present, and there were less than twenty in attendance.' Even as late as 1825, there were but thirteen taxpayers in the place, their aggregate possessions

being estimated at $8,947, upon which they were assessed one per cent., yielding the munificent sum of $89.47. That practically included most of the personal possessions held in our present county of Cook, organized in 1831."

In connection with this question I also refer to McCarty's Territorial Governors (the book heretofore cited by me) (reading, p. 107):

"The National Government was beginning to realize, what Governor Edwards and General Harrison had so long urged, that the frontier was poorly guarded. In fact the War Department had really done very little for frontier protection in the Territories. The Adjutant General's report of June 6, 1812, showed that the following number of regular soldiers were stationed in or on the borders of the Illinois Territory: at Fort Massac, 35; at Fort Madison, 44; at Fort Dearborn, 53; and at Vincennes and in the vicinity, 117; while the arms and munitions were hardly more than were needed in time of peace."

2728 Turning from the question of the early population in this region to the development of commerce and the amount of commerce upon the lakes in the early part of the nineteenth century, I again refer to Ford's History of Illinois (reading, p. 23):

"It therefore became the duty of the National Government not only to make Illinois strong, but to raise an interest inclining and binding her to the eastern and northern portions of the Union. This could be done only through an interest in the Lakes. At that time the commerce of the lakes was small, but its increase was confidently expected, and indeed it has exceeded all anticipations and is yet only in its infancy. To accomplish this object effectually, it was not only necessary to give to Illinois the port of Chicago and a route for the canal, but a considerable coast on Lake Michigan with a country back of it sufficiently extensive to maintain a population capable of exercising a decided influence upon the councils of the state."

2729 In the words "It therefore became the duty of the National Government not only to make Illinois strong," etc., and the words "At that time the commerce of the Lake was small," the language on the preceding page, it appears that Governor Ford was referring to the year 1818, and where

he states "and indeed it has exceeded all anticipations and is yet only in its infancy," he is writing with reference to about the year 1854, when the book was published. Further references to this work are (reading, p. 42):

2730 "Such a thing as regular commerce was nearly unknown. Until 1817 everything of foreign growth or manufacture had been brought from New Orleans in keel boats, towed with ropes or pushed with poles by the hardy race of boatmen of that day up the current of the Mississippi, or else wagoned across the mountains from Philadelphia to Pittsburg, and from thence floated down the Ohio to its mouth in keel boats, and from there shoved, pushed and towed up the Mississippi as from New Orleans."

Pages 96 and 97:

"Commerce in Illinois from 1818 to 1830 made but a small progress. Steamboats commenced running the western waters in 1816, and by the year 1830 there were one or two small ones running on the Illinois river as far up as Peoria, and sometimes further. The old keel boat navigation had been disused; but as yet there was so little trade as not to call for many steamboats to supply their place. The merchants of the villages, few in

2731 number at first, were mere retailers of dry goods and groceries; they purchased and shipped abroad none of the productions of the country, except a few skins, hides and furs, and a little tallow and beeswax. They were sustained in this kind of business by the influx of immigrants, whose money being paid out in the country for grain, stock and labor, furnished the means of trade. The merchant himself rarely attempted to barter business, and never paid cash for anything but his goods. There was no class of men who devoted themselves to the business of buying and selling and of making the exchanges of the productions at home for those of other states and countries. The great majority, in fact, nearly all the merchants, were mere bloodsuckers, when who, with a very little capital, a small stock of goods, and with ideas of business not broader than their ribands nor deeper than their colors, sold for money down or on a credit for cash, which when they received, they sent out of the country. Since their time a race of traders and merchants has sprung up, who use the money they receive for goods in purchasing the wheat and corn, beef

and pork of the farmers, and ship those articles to the eastern cities. Mather, Lamm & Co., late of Chester, in Randolph county, but now of Springfield, were the first to engage in this business, and they were led to it by the refusal of the United States Bank of St. Louis to grant them the usual facilities of trade. As they
2732 could get no accommodations from the bank, they fell upon this course to avoid going to St. Louis to purchase eastern exchange."

My next reference on the question of commerce is Transactions of the Illinois State Historical Society, Volume 8, page 113, published in 1904 by Ethelbert Stewart, of the United States Department of Labor, Chicago. Holding the position he does, his writings pertaining to his line of work would be considered of value by historians (reading, p. 118):

2733 "The pay rolls of the American Fur Company for 1818 and 1819 are obtainable, and show that the company was just beginning to operate in Illinois, which is spoken of as a 'dependency' of the Milwaukee branch of the company's business. A study of these pay rolls shows that much higher wages were paid for like services in Illinois than obtained either in the Mackinac district or on the Mississippi below St. Louis. The rates of pay mentioned in these pay rolls is in the depreciated currency of that time, and no attempt will here be made to give present equivalents. If boatmen received but $500 and $600, the rate paid in other districts, in 1818, in 1819 they received $1000 per year in Illinois, with no increases for boatmen elsewhere. Interpreters, men who could talk with the Indians, were paid $3000 a year in Illinois, whereas $1200 and $2000 were the rates elsewhere. An interpreter who was getting $2000 at Wabash, Indiana, was transferred to the Kankakee, Illinois, July 13, 18 and 19, at $3000 a year. The company paid $700 a year for a tailor in Illinois, which was more than double the wages paid at Mackinac. A carpenter who was 'left at Chicago' was on the pay roll for $1200 a year. A 'trader,' presumably a man well versed in the qualities of furs, was paid $3000 in Illinois, while below St. Louis $1500 was the rate. Certainly this larger pay would cause a rush to Illinois of all the men the company could be induced to use.

2734 In 1821 the company rated wampum at $5.50 per one thousand pieces or beads, and that year sent 20,100 pieces of wampum to Chicago to be exchanged for fur. This treasure came on the Schooner Ann, along with five dozen scalping knives at $1.20 per dozen, and 143 blankets of various qualities and prices. Buckshot was sold for 20c a pound. Salt was worth more per barrel than flour, the former being $6.00, the latter $5.00. Salt had to come from New York, and its price was the economic reason for the early development of salt wells on the Illinois river and on the Wabash. The result of these wells, together with Michigan developments, was that salt which, transported from New York, sold in Chicago for $6.00, dropped to $1.87½ a barrel at the Illinois wells, and the wages of coopers rose to $1200 a year.

It is not, however, in Cook County nor in the enterprise of the American Fur Company, that the substantial early industrial developments are to be sought. Cook County is not mentioned in the census returns until 1840, and then it was the eleventh in population. That census showed Morgan County with almost double the population of Cook; Sangamon had 14,716; Adams, 14,476; Madison, 14,433; while Cook had put 10,201. The economic trend of things which was to give to Cook County its impetus and make Chicago the wonder of the world set in between 1830 and 1840. Prior to that the solid development in the state had been in the central
2735 and southwestern counties. It is in them must be sought the economic data desired."

My next reference is to Fergus Historical Series, parts 6-9, page 51. The reference is found in "Chicago and Illinois," volume one, the particular article being "Early Chicago, a lecture delivered before the Sunday Lecture Society at McCormick Hall on Sunday afternoon, May 7, 1876, by Honorable John Wentworth, late the editor, publisher and proprietor of the Chicago Democrat, member of Congress for Chicago District for twelve years, two terms mayor, and a settler of 1836" (reading, p. 4):

2737 "It is events that we want; and by comparing them with other events, the dates of which we know, we can in time obtain the exact dates of all of them. While so many of our old settlers have passed away, there yet

may be remaining among their effects old papers whose value their legal representatives do not appreciate. Many old packages have been given to me with the remark that they did not see of what use they could be to me. One widow sent me some pieces of newspapers, which the mice had kindly spared, with the remark that she was ashamed to be sending such old trash to anyone; but from them facts enough were gathered to save another widow from being swindled out of her homestead. When I lectured before, it was a matter of dispute what was the name of the first steamboat that ever came to Chicago, and who was the person in command. She came to bring the troops for the Black Hawk War in 1832, and brought the cholera with them."

I omit then to page 5 (reading):

2738 "Capt. Walker says, that when he arrived at Chicago in July, 1832, there were but five dwelling houses here, three of which were made of logs."

Page 7 of the same work (reading):

"Official documents tell us that, in 1803, Capt. John Whistler, then a Lieutenant at Detroit, was ordered here to build the fort, that his troops came by land, and that he, with his family and his supplies, came round by the lakes in the United States schooner Tracy, with Dorr for Master. This probably was the first sail-vessel that ever came to Chicago. I can think of no business that would have brought one here before."

2736 My next reference is to Wisconsin Historical Collections, volume 4, page 195, Childs' Recollections from 1820 to 1835. Childs is the man mentioned by Alvord who made this trip down the Mississippi and up the Illinois river (reading, p. 195):

"From 1820 to 1835 all boats and vessels that came up the lakes came to Green Bay. There was no other place to go, except there would occasionally be one or two schooners that would go to Chicago with supplies for the troops. Soon after the arrival of the first steamboat at Green Bay, in 1821, the first schoolhouse was built at the place, and about the same time the first missionary school was opened."

2738 My next reference is to Hunt's Merchants Magazine and Commercial Review, volume 26, page 426, a work published on Western History running through a series of years, this volume being published in 1852, and being one of

the chief sources from which historians develop and learn the history of that period. It is cited as an authority about Illinois and was published at New Orleans. The title page reads: "Hunt's Merchants Magazine and Commercial
2739 Review, conducted by Freeman Hunt, Editor of the Library of Commerce, etc. Corresponding Member of the American and London Statistical Societies. Member of the New York Historical Society; Honorary Member of the Mercantile Library Association of New York, Philadelphia, Boston, Baltimore, Louisville, Charleston and Cincinnati, etc. Volume 26. From January to June inclusive, 1852. New York. Published at 142 Fulton Street, 1852." The passage I cite is an annual review of the commerce of Chicago for 1851 (reading, p. 456):

"Up to the year 1836, provisions for domestic consumption were imported along with articles of merchandise; and indeed many articles of necessary food continued to be brought in for several years later. In 1836 there were exported from the port of Chicago, articles of produce of the value of $1000.64. We have felt a great curiosity to know what articles constituted this first year's business, but have sought in vain for any other record save that which gives the value. The next year, the exports had increased to $11,065; and in 1838 they had reached the sum of $16,044.75. In 1839 they more than doubled the year previous, while in 1840 they had increased to what was then doubtless regarded as the very large sum of $228,635.74. This was progressing at a ratio very seldom equalled in the history of cities, and must have caused no little exhilara-
2740 tion among the business men of Chicago, as well as advanced the views of fortunate holders of water and corner lots.

We are informed in Judge Thomas' report that a 'small lot of beef was shipped from Chicago as early as 1833, and was followed each successive year by a small consignment of this article, and also of pork.' Some idea of the extent of the first consignment may be formed from the fact that three years after, the total exports of the place were valued at $1000.64. It was truly a small beginning, and gave but a slight promise of the great extent to which, as the sequel will show, this branch of business has grown. The same authority informs us that the first shipment of wheat from this

port was made in the year 1839. In 1842 the amount shipped reached 586,907 bushels, and in 1848, 2,160,000 bushels were shipped out of the part of Chicago. Since that period there has been a material falling off in the annual exports of wheat, owing to a partial failure of the crop each succeeding year, and from the fact that farmers are paying more attention to other products.

We subjoin a table of the value of imports and exports from 1836 to 1848, inclusive:

2741

Years.	Imports.	Exports.
1836	$ 325,203.90	$ 1,000.64
1837	373,677.12	11,665.00
1838	579,174.61	16,044.75
1839	630,980.26	33,843.00
1840	562,106.20	228,635.74
1841	564,347.88	348,862,24
1842	664,347.88	659,305.20
1843	971,849.75	682,210.85
1844	1,686,416.00	785,504.23
1845	2,043,445.73	1,543,519.85
1846	2,027,150.00	1,813,468.00
1847	2,641,852.52	2,296,299.00
1848	8,338,639.86	10,709,333.40"

I next read from the Chicago Magazine, The West as It Is, Volume 1, page 53, an extract from the biography of Charles Walker, Esq. I judge it is written by the editor of the paper, who says, on page 11:

"We have undertaken the task of writing a history
2742 of Chicago. This history must be in the main a narrative of events which have transpired within the memory of the present generation."

I find a note in lead pencil which says, "By Zebina Eastman."

Objection that no proper foundation has been laid.

(Reading, p. 53):

"The next year (1838) his firm purchased a few bags of grain of the surrounding farmers, which were sent to his mills in Otsego County, New York. This shipment of wheat, we believe, was the first ever made from Chicago, to so eastern a market."

2743 My next reference on this phase of the subject is entitled: "Illinois as It Is. Its History, Geography, Statistics, Constitution, Laws, Government, Finances, Cli-

mate, Soil, Plants, Animals, State of Health, Prairies, Agriculture, Cattle Breeding, Orcharding, Cultivation of the Grape, Timber growing, Market Prices, Lands and Land Prices, Geology, Mining, Commerce, Banks, Railroads, Public Institutions, Newspapers, etc. By Fred Gerhard, with a Prairie and Wood map, a Geological Map, a Population Map and other illustrations. Chicago, Illinois. Keen & Lee, Philadelphia. Charles De Silver. 1857." This is simply a record at that time; written in 1857 by one not a trained historian, but quoted and used by historians.

Objection; that no proper foundation has been laid.

2744 (Reading, p. 66):

"At the time such a rapid improvement was taking place in the manners and customs of the people, commerce comparatively made but little progress. Of steamboats which had been introduced in the western country about the year 1816, the Illinoisians possessed but two small ones in 1830, which were running up the Illinois river as far as Peoria. A majority of the merchants of the country were retailers of dry goods and groceries, who, with but a small amount of money and goods in their hands, sold only for cash, or notes payable on sight in cash, which they remitted to their eastern creditors, so that they would have soon been drained of their last specie, had not the money of the newly arrived immigrants supplied them again with the sinews of trade. Nothing was exported save a few skins, hides, furs, with tallow and bees wax. The merchants of Illinois used to go to St. Louis to purchase eastern exchange, but upon the suppression of the United States bank in that city, these facilities of commerce no longer existed, and the traders of Illinois, when the high rates of premium had rendered it impossible for them to remit either money or bills of exchange to their eastern creditors, were compelled to purchase the productions of the country, and to remit them to their creditors in

2745 place of cash. Most of the exports were shipped to New Orleans, at that time a place of inconsiderable importance. Since there were no merchants or express companies to forward the goods to market, the Illinoisian farmer would build his own boats, load them with his goods, and, with the assistance of a few men, sail down the river to New Orleans. After a long and trouble-

some voyage, he would arrive in New Orleans, only to fall an easy victim to the runners and sharpers, who abounded in that city, and go home penniless. On his return home he would find his farm neglected, and yet, notwithstanding this wholesome lesson, undertake, perhaps, another expedition to New Orleans at the earliest possible period. Even after, in consequence of the great improvements in steamboat navigation, excellent opportunities had been afforded to the people, not only to expand their commerce, but also their ideas about it, they still persevered in pursuing a narrow-minded, selfish commercial policy. They would, for instance, raise no surplus of produce, except when prices were high, and even then, perhaps, demand a higher price for their produce, than they could have sold it for in the market. They would never be in a hurry to sell, when prices were below their expectations, but rather wait, even for the space of a whole year, until they should be able to sell at the prices they had fixed upon; or they would even cease producing altogether, when
2746 prices continued low. The necessary consequences of such a proceeding was, that by allowing their produce to waste away and rot, they would lose more money than they could have gained, even if they had sold it at the highest market price, and would incur still another loss by being obliged to borrow money at high rates of interest, in order to pay for many necessities of life, or to carry on their enterprises, since, having sold nothing, they were often entirely destitute of money. However evident the folly of their course might be to others, they could not be prevailed upon to abandon it, having, it appears, an unshaken confidence in the infallability of their own judgment."

Q. Did a change come over the market and the character of the market at Chicago, and when did that change come, if at all?

Objection; irrelevant, incompetent and immaterial.

A. A change in Chicago commerce and in the development of Chicago began about the period of 1830 or 1833, to state it more exactly, when the Government began the improvement of the Chicago harbor. From my re-
2747 search upon the question I know that when commerce began coming to Chicago from the interior and from the southwest, it came by wagon.

Q. Is there any evidence of any transportation revealed by your research of any other way than by wagon before the building of the canal and the railroad?

Objection; incompetent, irrelevant and immaterial.

A. I have found none.

2748 Q. Have you made an exhaustive investigation for the purpose of ascertaining?

A. Yes.

Objection; leading and calling for the conclusion of the witness. Let him state what he has done.

The WITNESS (continuing): I have gone through the newspaper files of Chicago, the county histories, the engineering reports of the government, and through all references I could possibly find that would throw light upon the subject of 2749 what transportation was used. In this connection I refer to the volume labeled, "Chicago Weekly American, from July 16, 1841, to October 19, 1842, which I have obtained from the Chicago Historical Society Library. Turning to the Chicago American of September 17, 1841, I read from an editorial headed "Wheat Wagons." (Reading):

"The animation consequent upon our phoenixlike transition from gloom and despondency to an extensive and profitable business, is not alone confined to our principal streets. It is found in every part of the city and its suburbs: Every few rods you meet with a team or two, which is just about making preparations to leave town. Both in the city and in its outskirts, you see numberless little camps formed by the wheat wagons. Our squares and one or two vacant lots have been used for this purpose, besides large spaces in our suburbs. In the evening from the housetops you may see in every direction the fires lit up by those who have encamped for the night. Connecting the white coverings of the wagons with the fires, it is not difficult to imagine that 2750 they compose so many military posts, placed at every approachable point to ward off impending danger. In sober truth, if our business increases at its present rate, our suburbs will soon be one great encampment. We have fresh arrivals of farmers every day, and sometimes under extraordinary circumstances. Teams a short time since came from a distance of one hundred and fifty miles, which we thought of itself was doing very well. Soon after, we found to our great amaze-

ment, that they were coming in from a distance of two hundred miles, and they now come in from sections of country two hundred and fifty miles off, and bearing south, southeast and southwest. This absolutely makes us the market at this very time of about one-half of the State of Illinois, a large portion of Indiana, and a very considerable part of Wisconsin."

2751 In the Chicago American for Wednesday, August 24, 1842, I read from an editorial, entitled, "The Chicago Market," written by William W. Brackett, the editor of the paper. (Reading):

"The advantages of this market now seem to be fully understood by persons residing in the southern part of the state. The State Register in an article relative to the farming interest, suggests that the farmers in the neighborhood of Springfield should haul their wheat to this place or to Alton, where, it also says, goods could be purchased 50 or 100 per cent. cheaper than at Springfield. How much cheaper merchandise can be bought here than in Springfield, we are not prepared to say, though it can be, as a matter of course, for very considerably less. On the other hand, making every allowance for the expense of hauling, the price of wheat in this city is at all times so excellent that the farmer of the south must invariably find it for his interest to visit

2752 us. Our proximity to the Canada market, gives us, in this respect, advantages possessed by no other place in the state. Not to allude to other articles of merchandise, farmers will see from the price of salt in Chicago, that it is for their interest to trade with us. This article, always extremely low in this place, is now selling here for one dollar and twenty-five cents per barrel."

From the same reference, August 24, 1842, Chicago American, another editorial appears, under the heading of "Wheat wagons." (Reading):

"Our wheat trade is again fairly under weigh. Prairie schooners from all parts of the country are bringing in their rich freights; clouds of dust herald their approach from afar and in all directions. Many of the Hoosier teams are provided with bells suspended from an arch or otherwise, after the manner of those of Russia, and other portions of Europe. As the wagons drive into the city, first comes the jingling of

bells, then the loud cheerful crack of the long whip, and lastly the rumbling and creaking of the well-loaded vehicle. Trains of from thirteen to twenty wagons are now familiar spectacles.—We noticed sixty-two wagons, with their white tops, yesterday afternoon, at one encampment.—At some little distance it might have been imagined the camp of an army beleaguering our city, especially when, after nightfall, fires lit up in various
2753 quarters of it, shed their red light far and wide. We devoutly hope that these may be the only armies by which our flourishing city shall ever be circumvented. So far we have come to terms with them right speedily. We understand that a train of eighty wagons loaded with wheat and apples is on its way to the city."

In my researches I have found evidence of the manner in which produce or travelers coming up the Illinois river came from the Illinois river, or the produce was brought from the Illinois river to Chicago.

Q. How did they come?

Objection; incompetent, irrelevant and immaterial, and calls for statement of facts concerning which the witness could not have any personal knowledge.

Mr. SCOTT. I am now speaking of the days of the early settlement, in the early part of the nineteenth century.

Same objection.

A. They came up the Illinois river, using the river as far as they could. When the water became too shal-
2754 low they would leave it and come across by wagon. In this connection I refer to the advertisement of the Western Transportation Company in 1836, which runs in the issues of the Chicago American in 1836 for May 7, 14, 21 and 28. These papers are before me and belong to the Chicago Historical Society.

Objection; incompetent, irrelevant and immaterial.

The WITNESS (reading):

"Western Transportation.
United States Line.

Merchandise intended for this line will be shipped by the Swiftsure Line Tow Boats which leave New York Daily at 5 o'clock P. M.

Erie Canal.

One boat will leave Troy and Buffalo daily, well fitted for freight and passengers.

The only Steam Freight Line on the Lakes.

Dewitt Clinton; Robert Fulton; Charles Townsend; Pennsylvania; United States; New York; Sheldon Thompson.

One Steam Freight Boat will leave Buffalo every ten days for Chicago and the intermediate places on Lake Michigan.

Vessels on the Lakes. — Brig. John Kinzie; Sch. Globe; Buffalo, do; Hiram do; Atlanta do; Detroit do; White Pigeon do; Juliet do; St. Joseph do; Cleveland do; Constitution do; Minerva do; Lady of the Lakes do; J. W. Maurice do; Bolivar do; Liguer do; Ohio do; Erie do.

A vessel of this line will leave Buffalo daily for Chicago and intermediate ports on Lake Michigan.

Proprietors.

J. P. Griffith & Co., New York.
James Platt & Co., Albany.
Coit, Kimberly & Co., Buffalo.
Griffith, Pease & Co., Cleveland, O.

J. R. Dorr & Co., Detroit, M. T.
Kinzie, Hunter & Co., Chicago, Ill. } Agents.

2756 N. B. Wagons for the transportation of Merchandise by this line from Chichao* to the Illinois river, and other points will be in readiness at all times.

KINZIE, HUNTER & Co.

*As spelled in 'Chicago American,' May 7, 1836."

The WITNESS (continuing). Another advertisement running in this same paper under the dates of May 17, 14, 21 and 28 in 1836, reads as follows:

"Western Transportation. By railroad line of tow boats from the foot of Broad street, New York, daily at 5 o'clock P. M. Mohawk & Hudson Rail Road from Albany to Schenectady. Pilot and Trader's Line, Erie

Canal—sixty boats—five boats daily, from Schenectady and Buffalo, Running night and day.

Eagle Line of Chicago Packets and Steam Boats, regularly despatches every sixth day for Sault Ste. Marie, Mackinac, Green Bay, Grand River, Kalamazoo, St. Joseph, New Buffalo, Michigan City, Chicago, Milwaukee, Racine (Mouth of Foot River). Towed by steam boats from Lake Erie to Lake Huron.

Goods by this line will ordinarily be delivered in Buffalo two days in advance of other lines. The arrange-
2757 ments throughout are so perfect as to ensure a more speedy delivery of goods on the upper lakes, than can be obtained through any other channel. Hubbard & Company having connected themselves with a line of transportation wagons between Chicago and the head of navigation on the Illinois River, will forward daily all goods consigned to them, through the above line, to any point on the Illinois River or St. Louis.

Proprietors:

Jonathan Child, Hiram Wright, H. H. Treat, } Rochester. John M. Hughes, Ammi Dows Roswell Carter, } N. Y.

Schenectady. Bushnell's Basin.

S. T. Atwater, Port Gibson.

Pratt, Taylor & Co., Buffalo, William Brewster, Detroit, Hubbard & Co., Chicago. } Eagle Line."

2758 I now refer to a volume labeled "Chicago Weekly American, from July 11, 1836, to June 3, 1837, October 14," which is from the collection of the Chicago Historical Society. I read from the date of October 29, 1836:

"Troy & Oswego Line.

Arrangements For 1836.

The Proprietors of this Line again invite the patronage of the Western Merchants. They have made such additions as they think will meet the increasing business of the

Oswego and Welland Canal Route,

and enable them to transport property to and from New York and all Ports on the Western Lakes with in-
2759 creased facility and despatch.

All property shipped by this Line, is insured to Oswego only, but will be throughout, on the applica-

tion to the agent at New York, or the Proprietors at Oswego.

W. Sabine having connected himself with a line of transportation wagons between Chicago and the head of navigation on the Illinois River, will forward all goods consigned to him by the above line to any point on the Illinois River or to St. Louis.

Bronson & Crocker, Oswego
G. P. Griffith & Co., } Troy.
Wm. C. Rice. }
James Platt & Co., Albany.
Jas. S. Wyckoff, New York.
} Proprietors.

References: Griffith, Peace and Co., Cleveland; Bronson & Coit do; Everett & Co., Richmond; S. B. Sturgess and Co., Huron; Townsend and Williams, Sandusky; Brewster, Smart and Co., Detroit; J. Griffith and Co., St. Joseph; Wm. Teal and Co., Michigan City; or Wm. Sabine, Chicago.

JAMES S. WYCKOFF,
Agent.
No. 33 Coenties Slip, New York."

2761 From other advertisements occurring on this page in the issue of October 29, 1836, I refer to the portion of that of the Western Transportation, the New York and Oswego Line, which refers to the Illinois. (Reading):

"Wm. Sabine, having connected himself with a line of Transportation Wagons from Chicago to the head of navigation on the Illinois river, will forward goods consigned to him by the above line to any point on the Illinois river or St. Louis."

I also refer to another advertisement on this page (reading):

2762 "Western Transportation, by Rail Road line of tow boats from the foot of Broad Street, New York, daily, at 5 o'clock p. m. Mohawk & Hudson Rail Road, from Albany to Schenectady. Pilot and Trader's Line, Erie Canal—sixty boats—five boats daily from Schenectady and Buffalo, running night and day. Eagle Line of Chicago Packets and Steam Boats, regularly despatched every sixth day for Sault Ste. Marie, Mackinac, Green Bay, Grand River, Kalamazoo, St. Joseph, New Buffalo, Michigan City, Chicago, Milwaukee, Racine (Mouth of Foot River). Towed by steam boats from Lake Erie to Lake Huron. Goods by this line will ordinarily be de-

livered in Buffalo two days in advance of other lines. The arrangements throughout are so perfect as to insure a more speedy delivery of goods on the Upper Lakes than can be obtained through any other channel. Hubbard & Co. having connected themselves with a line of Transportation Waggons, between Chicago and the head of navigation on the Illinois River, will forward daily all goods consigned to them, through the above line, to any point on the Illinois river or St. Louis.

Proprietors:

Jonathan Child, Hiram Wright, H. H. Treat } Rochester
John M. Hughes, Ammi Dows, Roswell Carter } N. Y.

2763 Schenectady Bushnell's Basin

S. T. Atwater, Port Gibson.

Pratt, Taylor & Co., Buffalo.
William Brewster, Detroit.
Hubbard & Co., Chicago. } Eagle Line.

References: Daniel Whitney, Green Bay, Rix Robinson, Grand River; John Hulbert, Sault Ste. Marie; Michael Dousman, Mackinac; T. & B. Wheeler, St. Joseph; Joseph C. Knapp & Co., Racine; Brown & Hass, Michigan City; H. H. Comstock, Kalamazoo; Hubbard & Co., Chicago."

2764 I find that these advertisements run in the issues of November 5, 19, 26, and December 3 and 10. I have not examined beyond that point. On January 7, 1837, in the Chicago American, in the same volume, I find (reading):

2765 "New York and Ohio Line.

Running Day and Night on the Erie and Ohio Canals, in connection with a daily line of steam freight boats and vessels on Lake Erie, a weekly line of steam freight boats and vessels on Lake Huron and Michigan, and a regular line of wagons between Chicago and the Illinois River, will be enabled to forward all goods entrusted to their cars to Chicago, and all other points, with greater expedition and as cheap as any responsible line.

H. Meech, Olmsted's & Co., Albany
Smith, Macy & Russell, Buffalo, } Proprietors.

Ward & Smith, Cleveland, Ohio
R. Gillett & Co., Detroit, M. T.
Kinzie, Hunter & Co., Chicago. } Agents."

2766 Aside from the foregoing advertisements, in my re-

search I found other evidence as to the use of stages between Chicago and the Illinois river.

Objection: To all testimony with reference to stages, as incompetent, irrelevant and immaterial.

The WITNESS (continuing): Among them is Fergus' Historical Series, Volume 1, page 44, "Biographical Sketches of some of the Early Settlers of Chicago." Biography of Thom-
as Church, Esquire, by James Taylor, Ph. D., author of
2767 Moral and Social Manners. (Reading, p. 44):

"There are some very interesting incidents connected with Mr. Church's early experience of merchandising in Chicago. In 1837 he purchased at one time 75 tons of goods, the freight on which from New York to Buffalo alone, was $1100.00. Late in the Fall of 1837 sugar was very scarce here, and Mr. Church went to St. Louis, bought a large quantity, and had it repacked in barrels. This was necessary, as it had to be transported in wagons from Ottawa here, and the roads being none of the best, there was some danger that the teamsters might get stuck in the sloughs. In case this accident should happen, they could roll the barrels to terra firma. This lot of sugar cost 8¾ per pound in St. Louis, and it sold here at the rate of six pounds for a dollar. It was customary to buy everything by the dollar's worth. The smallest change in money was a half dime. Sixteen of these, or eight dimes, passed for a dollar."

Another reference in this connection is "The History
2768 of Chicago from 1833 to 1892, describing the difficulties of the route from New York to Chicago and hardships of the first winter. Also describing several trips to the various villages around, including one to the east in the year 1834, and commencement of the packing and grain business of the city in 1842. By Charles Cleaver, one of the oldest residents of Chicago. Also giving a description of Jackson Park and the great improvements now going on for the World's Fair, Chicago. Published by the author in 1892." Cleaver was an old resident of Chicago who made trips to various villages around that point.

Objection: Incompetent, irrelevant and immaterial and no proper foundation laid.

The WITNESS (continuing): Historians would use this work in developing the history of Illinois. (Reading, p. 73):
2770 "In 1842 or 1843 I first visited Galena, then quite a city of note, doing a larger wholesale business than Chi-

cago. It was the center of the mining district for lead, and was a point at which all the shipments were made for the south and east, being the distributing point for the Upper Mississippi on the Northwest. From there Chicago received its first shipment of clarified sugar, bought from the agent of the St. Louis Refinery, who was stationed there. It was only sixty barrels, but the forerunner of an immense trade afterwards done with St. Louis, through an agent appointed here. In the Fall of 1842 I made two trips to St. Louis for the purchase of sugar and molasses, being the first ever brought into the city direct from the south. The route was from here to Peru by stage, and from there by boat. The water was very low—so much so that there was only two small boats running out of about twenty in the trade. The rest were stuck on the different sand bars, some ten or twelve being on the Beardstown bar. The small boat on which I took passage only drew about two feet of water. Consequently she continued her trips, but was a whole week reaching St. Louis."

2771 My next reference relating to the transportation used between the Illinois river and Chicago is "The Eastern and Western States of America, by J. S. Buckingham, Esq., in three volumes. Volume 3. Fisher, Son & Co. Newgate Street, London. Rue St. Honore, Paris." This work as shown by the preface of volume 1 states: "That the range of the country included in this extends over a much greater area embracing the eastern states of Maine, New Hampshire and Connecticut, and the western states of Ohio, Kentucky, Indiana, Illinois, Missouri, Iowa, Wisconsin and Michi-

2772 gan." The preface is dated November 1, 1842. This reference would be accepted as a line of evidence which could be used by an historian upon which to base his conclusions. In itself it would not stand as authority, but if taken with cumulative evidence would bear weight because the author is describing conditions that he finds, and he has evidently written at the time or soon after he made his trip over this route. In the excerpt which I will read he is speaking of a trip he made passing upward from Peoria to Chicago, and he describes his experience in that area. (Reading, p. 215):

Motion to strike out as not responsive.

2773 "Pursuing our way upward from Peoria, in the vicinity of which the river expands to a breadth of two or

three miles, and is there called a lake, though it afterwards contracts to its former narrow dimensions, we passed in the course of the forenoon the small towns of Detroit, Rome, Allentown, Chillicothe, Lacon, Henry, Webster, Hennepin, and Enterprise, at distances of from four to twelve miles from each other, but few of them having more than 300 inhabitants, except Hennepin, which numbers 700, while others have not more than 50. At twelve o'clock at noon we reached the ultimate point of practical navigation on the river Illinois at the present season, namely, the town of Peru, at which there were at least 1,000 inhabitants on both sides of the river."

I omit then to page 220 and begin:

"Landing at Peru, we began to make arrangements for the performance of the remainder of our journey to Chicago, which would have to be made by land. We engaged an extra stage coach to take us on to Ottawa, a distance of sixteen miles at the mouth of the Fox river, where we should find the regular mail coach to take us the rest of the way."

2774 I now refer to "Illinois Pamphlets, 1874 to 1882. Towns, etc. Vol IV." The particular extracts being from "Forty Years Ago, a contribution to the early history of Joliet and Will County, by George H. Woodruff," published at Joliet in 1874. This is the same Woodruff who has written "Woodruff's County History."

Objection: No proper foundation has been laid as to the authority of this pamphlet, for reading from this book.

The WITNESS (reading, p. 66):

"The opening of the canal was a new era in the history of this city and vicinity. Hitherto goods had been transported from Chicago chiefly by ox teams, drawing
2775 the old Pennsylvania canvas covered wagons, generally called prairie schooner, and not inappropriately.

A stage route was established as early as January, 1834, between Chicago and Ottawa, running by Plainfield or Walker Grove. Judge Caton informs me that he piloted the company which first went through and established stations, and that the party suffered greatly from the intense cold. In 1837 a stage came from Plainfield across to Joliet, and then passed down the river to Ottawa. After a year or two more the route was

changed again, going to Chicago, directly up this river on the west side, and leaving Plainfield out in the cold. A tedious ride it used to be by stage to Chicago, especially when we went around by Plainfield. Just think of it. You, who are so impatient at the hour and a half required now to pass from one to the other. An entire day used to be required to make the passage, and sometimes when the roads were bad, considerable of the night, too. I remember when coming back from the east in the fall of 1837, the driver of the stage lost his way in coming across from Plainfield, and wandered about quite a while on the trackless prairie. In those days, the arrival of the stage and the mail was an event in our daily life. Frequently there were two or three extras,' and the capacity of the old American and the Higley House, and later of the National, were often
2776 taxed to their uttermost to supply the 'wheat bread and chicken fixings' which the travelers required, while the regular boarders very often had to take up with 'corn bread and common doings.' When the canal was completed in 1848, of course the day of the stage was over, and 'Friend Kipp' and others had to give up the 'ribbons'; and the day of the packet boat and Captain Conet had come, only to be superseded in its turn by the rush-in railroad train. What device can displace the last, who can conjecture?"

In the Chicago American for September 17, 1836, I find an editorial entitled "The Route to Chicago."

Objection: Incompetent, irrelevant and immaterial.

The WITNESS (reading):

2777 "Route to Chicago—The enterprising proprietors of the 'Illinois Stage Company,' says the St. Louis Bulletin, with the view of establishing a regular and speedy communication between this city and Chicago, have purchased the steamboat Frontier, with the intention of running to Peru, Illinois, whence travelers will be conveyed to Chicago, and the intermediate towns by first rate coaches. One of the proprietors of the above line, Mr. Trowbridge, authorizes us to state that the mail will be transported on this route as soon as the arrangements are completed."

2778 I have before me the Chicago American for March 9, 1842, procured from the files of the Chicago Historical

Society. (Reading under the heading, "Proposals for Carrying the Mails"):

2779 "Proposals for carrying the mails of the United States from the first of July, 1842, to the 30th of June, 1846, inclusive, in Illinois, will be received at the contract office of the Post Office Department, in the City of Washington, until 3 o'clock P. M., of the 14th day of April, 1842, (to be decided by the 30th day of said April) on the routes and in the manner and time hereinafter specified, to-wit:"

2780 Toward the bottom of column 5 I find a reference to mails and routes between Chicago and Joliet and other places, one numbered 4209 (Reading):

"From Chicago to Summit, Flag Creek, Des Plaines, Keepatau, Lockport, Juliet, Au Sable and Lisbon, to Ottawa, 84 miles and back, six times a week, in four horse coaches.

Leave Chicago every day except Sunday at 8 A. M., arrive at Ottawa next day by 4 A. M.

Leave Ottawa every day except Sunday at 10 P. M., arrive at Chicago next day by 7 P. M."

2781 I read from the Chicago American for January 2, 1836, an editorial headed "Transportation Company (Reading):

The public will be gratified to learn that a company is now formed for the transportation of goods from Chicago to the Mississippi.

A line of wagons is to be established from Chicago to the Illinois river, terminating, we understand, at or near Kankakee; from which place flatboats are to run to the head of steamboat navigation on the Illinois river, and steamboats will complete the line to St. Louis. The stock of the company is taken chiefly in Ottawa and Chicago. It is connected with one of the largest lines upon the lakes and the Erie Canal. One Hundred and Twenty merchants in St. Louis and Alton also have entered into contract to bring their goods this way. The company was formed for the accommodation of that portion of the country, the wants and business of which are so great as to make the undertaking profitable also to the stockholders. The immense advantage of lake transportation over any other, in connection with this new arrangement will enable merchants in the southwest

2782 to get their goods from New York at less expense

through this channel than through the southern route. It should be understood that this important arrangement did not originate here, but with those merchants referred to, who are directly interested, and who have calculated the advantage to be gained to themselves. If under the present circumstances this route is preferable, how much more will it be preferred when the canal is built. When that is accomplished, it will always be the channel for the commerce of Illinois and Missouri. The great bulk of the western trade will ever be carried on upon the lakes, and the more conveniently any portion may be connected with these waters, the greater will be its facilities of commerce, and the less the expenses of trade."

2783 In the Chicago American of Saturday, January 16, 1836, which I have before me, I find this matter in the editorial column (reading):

2784 "We have received the following communication correcting the error in our information relative to one particular concerning the Illinois Transportation Company. The writer would confer a favor upon the public, by apprizing us of any other designs or arrangements of the Company which may be important to be understood.

'Ottawa, Jan. 4, 1836.

Mr. Editor:

Sir: Having observed in your paper a statement in relation to the Illinois Transportation Company, that they intend to have teams from Chicago to the mouth of the Kankakee, and flat-boats to the head of navigation on the Illinois river, I beg leave to correct the error under which you appear to labor, and to inform you that the arrangement is for teams to go to Ottawa when the Illinois river is sufficiently high, and when it is not for them to continue on to Utica, and have large and small steam boats where the teams end, to St. Louis, for the purpose of enabling them to go to Ottawa at nearly all seasons of the year.

The objects of this information is simply for the pur-

2785 pose of informing the public correctly, of the views and intentions of the Illinois Transportation Company, to which I am a

SUBSCRIBER.'"

2786 Objection; incompetent, and does not appear by whom foregoing excerpt was written.

2787 The WITNESS (continuing): My next reference in connection with the methods of transportation from the Illinois river to Chicago is "Lake and Gulf Waterway. A Brief with Illustrations and Notes, Published by the Citizens' Association. Prepared under the direction of the Committee on Main Drainage, by Lyman E. Cooley, C. E., Chicago, January, 1888. Chicago Legal News Co., Printers, 87 Clark Street, 1888."

(Readings, p. 20, vol. 1):

"Chicago is not only willing to care for her drainage at her own expense, but she is desirous of doing so in such manner as to confer the greatest benefit on the
2788 State and Nation. Her requirements demand a channel of five times the capacity of any yet proposed for navigation, and a comparatively small increase in cost will adapt it to commerce throughout its length from Chicago to Joliet. At the latter point will be delivered 600,000 cubic feet of water per minute, making it practicable to obtain by slackwater, and at minimum cost, a navigable depth of ten feet between Joliet and La Salle, the present head of navigation on the Illinois. Below La Salle full seven feet on the bars will obtain at once, increasing to ten feet or more through natural forces and channel treatment in difficult places. Twenty per cent. will be added to the normal low water volume from St. Louis to Cairo, increasing the depth for navigation about one foot, and ten per cent. below Cairo, adding not less than six inches to the navigable depths at low water."

My next reference on this point is "Report of the Canal Commissioners of the State of Illinois. Made to the General Assembly on the third of January, 1825. Accompanied
2789 by a map of the proposed canal. Together with the law Incorporating a Company to Open a Canal to connect the Waters of Lake Michigan with those of the Illinois River. Published by order of the Board. Vandalia, Illinois. Printed by Robert Blackwell. 1825."

(Reading, p. 5):

"From the mouth of the Little Vermillion, above referred to, neither the Illinois nor the Des Plaines, is navigable in low stages of water, as they are frequently interrupted by rapids; but no serious obstacles present themselves, in effecting a canal navigation from the head of the navigable waters of the Illinois River, to

Lake Michigan; the valley of the rivers Illinois and Des Plaines being an inclined plane, and the country between the Des Plaines and the Chicago River, smooth, flat prairie, with a gentle inclination toward the lake."

(P. 23):

"Many, and indeed we may say nearly all, of the canals that have been constructed, except those in the state of New York (the ultimate effects of which are destined to embrace objects of greater importance) are
2790 for the purpose of facilitating the communication along an accustomed highway; opening to commerce no new field—giving to agriculture no new excitement; but in relation to the intercourse between the Illinois and Lake Michigan the case is widely different. Here the canal will not only furnish a safe and expeditious mode of conveyance between two important points, but to open the western states a new and additional market, and by the reciprocal advantages afforded, excite their citizens to industry and enterprise. It will, in truth, be adding one of the most important links to the American Commercial Chain, which must, by its effects, bind together the respective interests of the Atlantic and Western states; consolidate the commercial and political policy of the most distant parts of the Union, and give to the patriot a grateful theme."

I also cite in this connection "Collections of the Illinois State Historical Library, Volume 4. Exclusive Series Vol. 1. The Governor's Letter Books, 1818-1834. Edited with Introduction and Notes by Green and Alvord. Published by the Trustees of the Illinois State Historical Society, Spring-
2791 field, Illinois, 1909." My excerpt is taken from the report of James Bucklin, Engineer for Illinois for the Illinois and Michigan Canal, which is a copy of an official report written before the construction of the canal.

Objection; that no foundation has been laid for the introduction of such secondary evidence. Incompetent, irrelevant and immaterial.

2792 The WITNESS (reading, p. 192):

"Artificial reservoirs for the purpose of aiding and supplying canals with water have been in use many years and are now extensively and successfully employed. The largest reservoir of which we have any account has been constructed for the supply of the Languedoc canal in the south of France, the area of which is 595

acres and the depth 30 feet. The next in capacity is the Licking Summit and reservoir on the Ohio canal which cover an area of 2424 acres with an average depth of 6 feet. As a reservoir the Ausoganaskie Swamp may be rendered available to supply the deficiency of the Des Plaines it will contain an area of 900 acres and the water of the Des Plaines can be put in requisition to fill it to the depth of 11-5 feet. The length of the Summit level will probably be thirty miles, certainly not more. Experience has shown that not less than 100 cubic feet of water per minute for each mile in addition to the quantity necessary for leakage ought to be admitted into a calculation having in view a full and regular supply. Thirty miles require for its supply of water 3000 cubic feet per minute."

In the same volume on page 74 I read a copy of a letter from Edward Cowles, Governor of the State of Illinois at that time, to James Monroe, President of the United States, dated January 20, 1825.

Objection; same as preceding.

The WITNESS (reading):

2793 "Dear Sir. In the compliance with the request of the Legislature of this State I have the honor to transmit you a copy of the 'Report of the Canal Commissioners of the State of Illinois,' together with a map of the country between the head waters of the Illinois river and Lake Michigan, on which is delineated the proposed canal to connect their navigable waters, and to renew the assurances of my great respect and sincere regard.

Signed, 'EDWARD COWLES.'"

2794 COUNSEL FOR DEFENDANT. I would like to ask the Government whether it is going to insist upon the objection that the original document is the best evidence, in view of the evidence introduced on the part of the United States from official documents. No originals were produced; a number were referred to, all were from copies published in such volumes as these.

To which, after some discussion, Counsel for Complainant replied that he thought an agreement could be reached
2795 upon the matter, and that if counsel for defendant was willing to permit the use of copies, counsel for complainant would be willing to extend the same courtesy.

2797 The WITNESS (continuing): Further, in connection with methods of transportation, I read from Illinois

Historical Collections, Vol. 4, page 94, a copy of the letter of J. S. Johnson, Esq., State of Illinois, Executive Department, Vandalia, November 1, 1825, signed by Edward Coles. Johnson was chairman of the special committee of the Senate of the United States.

(Reading):

"The works of the greatest importance which the State has in contemplation, and in which her citizens take a deep interest, and are most anxious to undertake and complete as soon as possible, are those by which navigable communications will be effected between Lake Michigan and the Illinois river, and Lake Erie and the Wabash river. Memorials have been addressed to Congress on the subject soliciting the aid of the Federal Government either in land, or in such manner as in its wisdom it conceives best to effect their objects, which are deemed not only of the first importance to the prosperity of this State, but highly so to the Union, and directly productive of revenue to the U. S. from the increased demand and value they would give to the public lands."

2799 My next reference as to the methods of communication between the Illinois river and Lake Michigan prior to the canal is to "Western Portraiture and Emigrants' Guide": A description of Wisconsin, Illinois and Iowa, with remarks on Minnesota and other Territories. By Daniel S. Curtiss. New York. Published by J. H. Colton, 1852." Page 47. It is one of the early emigrant guides that a historian uses in gathering collective evidence. It would not be positive proof, but if corroborated would lead to a conclusion. Mr. Alvord is one of the editors and publishers of this publication.

(Reading, p. 47):

"In regard to the direction of transportation and trade, as touching the West and North West, the Chicago Daily Tribune has the following:

'We have repeatedly called attention to the fact that the opening of the Illinois and Michigan Canal had changed the course of trade of a very large portion of the productions of the Illinois river valley. Previous to that event, that region of country found its only outlet to market by following the downward course of the rivers to the Gulf of Mexico. The amount of corn, wheat, pork, lard, beef and tallow, and many other articles,

that have taken the Northern route the present season, is immense.' ''

2800 My next reference is ''The Chicago Daily Democrat,'' in the volume marked June 7th to December 31st, 1849, the property of the Chicago Historical Society. I read from an editorial entitled ''Illinois and Michigan Canal'' in the issue of October 8, 1849. (Reading):

''The advantages of the Illinois and Michigan Canal are felt more and more every day by the towns on the
2801 Illinois river. Immense quantities of goods are daily arriving at this place by way of the canal. These goods could not have reached here in season by any other way, the Ohio being too low for transportation by that route. The great improvement and enlargement of our town is mainly owing to the facilities furnished by the canal for getting lumber. It is now settled beyond a doubt, that Beardstown as well as other towns above us, is established upon a permanent basis.—(Beardstown Gazette.)

The above paragraph shows how shortsighted people may be in opposing, what, after all, is for their very best interests.

Before the completion of the Illinois and Michigan canal, the towns on the Illinois river could boast but of a mere vegetative existence. They could only obtain building materials of an inferior description at an enormous price; while they were compelled to pay—on account of high freights and the distance they had to come —for articles of manufacture, at a very large advance upon eastern prices. At the same time the prices of all kinds of produce were low in the extreme. Pork, beef, wheat, corn and oats, were selling for a mere song. Corn that now brings thirty and forty cents per bushel, then sold as low as twenty cents, and in some seasons for half that price.

Thus, the growth of these towns was entirely checked, and the settlement of the country on which they were de-
2802 pendent, retarded, and the people grown back toward a state of nature; from the fact that they found no market for their agricultural productions; and no exchange of commodities, by which civilization is advanced, and the stimulus given to the labor of a country.

But, before the completion of the Illinois and Michigan canal, and when that completion was considered ex-

tremely doubtful, these same Illinois towns opposed with all their might, an improvement, which was ultimately for their highest good. Now they receive the lumber that builds their houses, and the merchandise which stocks their stores by the canal, while it has created a market for the products of the country which had added one hundred per cent. to their value.

We trust we will hear no more grumbling from this quarter, in view of these decided advantages."

I now refer to volume of the "Chicago Daily Democrat," June 17 to December 31, 1851, the property of the Chicago Historical Society, and refer to an editorial headed "The City of Peru," in the issue of December 5, 1851.

2803 Objection, incompetent, irrelevant and immaterial, understood to apply to all these excerpts.

The WITNESS (reading):

"The opening of the canal and the large receipts of lumber consequent upon that event, have given a great impulse to improvements in the way of building in all the Illinois river towns. Formerly lumber could not be obtained except at enormous rates—from $30 to $40 per M.—now it can be had at Chicago prices, the cost of transportation added. Peru, in common with other points, had formerly suffered from this lack of a most important material for building, but now it is experiencing almost the same facilities in this respect as those enjoyed by Chicago. We notice that, even, notwithstanding the large supply of very fine building stone in the immediate vicinity plank is used for sidewalks in Peru. It looks somewhat strange to see such a frail material chosen in preference to the stone which overhangs the city, the whole side hill being a magnificent stone quarry."

2804 I now refer to "The Travelers' Directory for Illinois," by Peck, 1850, with map exhibiting the sections; published by J. H. Colton, 1840. The title page reads:

"The Travelers' Directory for Illinois; containing accurate sketches of the state—a particular description of each county, and important business towns—a list of the principal roads, stage and steamboat routes, land offices, tracts of land unoccupied—a description of the timbered and prairie portions of the state; the rivers, minerals, animals, internal improvements, climate and seasons—with much other original and valuable infor-

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mation for the traveler, the emigrant, the man of business, and the citizen.

The whole is intended as a companion to the new sectional map of Illinois.

By J. M. Peck, of Rock Spring Ill., author of a 'New Guide to Emigrants,' 'Gazetteer of Illinois,' etc., etc."

2805 This contains a lot of material of which the authors could not have first hand knowledge. The historian would be justified in using it as a basis of conclusions if he found corroborative evidence of the facts stated.

Objection, no proper foundation laid; incompetent, immaterial and irrelevant.

The WITNESS (reading, p. 193):

"Roads, distance, &c. Suppose the traveler enter the state at Chicago. He will find a daily stage to Ottawa, connected with a steamboat to Peoria, and from thence to St. Louis, during navigation.

From Chicago to Ottawa.

	Miles.	Aggregate Miles.
Des Plaines River	12	
Plainfield	28	40
Lisbon (Holderman's Grove)	24	64
Ottawa	16—	80
To Galena by Rockford.		
Elgin	35	
Amesville	30	65
Belvidere	6	71
Rockford	14	85
Junction of the Dixon and Galena Road	42	127
Forks of Apple River	18	145
Galena	20—	165
To Milwaukee and Green Bay.		
Milwaukee (W. T.)	90	
Green Bay "	110—	200
To Ottawa, by Juliet and the Canal route.		
Point of Oaks	11	
San-ga-nas-kee	9	20
Lockport	12	31
Juliet	6	37
Dresden	14	51
Marseilles	24	75
Ottawa	8—	83"

2807 I now read from "History of La Salle County, Illinois. Its Topography, Geology, etc., and a Sketch of the Pioneer Settlers of each Town to 1840, and so forth, by Elmer Baldwin, Chicago, Rand, McNally & Company, Printers, 1877." I read from article entitled "Narrative by the Author," on page 121.

Objection; no proper foundation laid for its introduction.

The WITNESS (continuing): This was not written by a trained historian, but by a man who knew of the conditions concerning which he wrote. It would rank higher than the county histories that are published for a publishing company, but not as high as if written by a trained historian. It would be used by a trained historian after weighing the material as a basis of his conclusions.

Have used this book in connection with my own work,
2808 and was familiar with it before my commencing with this case.

2809 As he was narrating his own personal experiences, he would no doubt give them accuracy, and it would be accepted as a better class of evidence, than if he was
2810 writing of something he had not seen (reading, p. 124):

"But to resume our narrative. After an ineffectual effort for two days to obtain a seat in the stage that ran from Chicago to Ottawa, we left Chicago on foot, about 1 o'clock P. M. of a very warm afternoon. There had been heavy showers for several days, and the low prairie around Chicago was more like a lake than dry land."

2811 Context shows he is there speaking of the date of 1835. The narrative says, "May 1, 1835, in company with three others, Beebe Clark, James B. Beardsley and N. W. Merwin, I left the western border of Connecticut, to explore the west; this part of Illinois being our destination."

From the passage, "The Journey which then consumed three weeks can now be accomplished in less than two days," it appears that they took three weeks to make the journey (reading, p. 124):

"The next day we walked about forty miles to Plainfield. It gave us our first view of a rolling Illinois prairie. We had pictured in imagination the far-famed prairie, but in common with others from the East, we had no adequate conception of its character."

2812 My next excerpt is a statement by Thos. Parr, in which he says "I came to Illinois in 1834."

Objection; no proper foundation laid for introducing this statement.

The WITNESS (reading):

"Arriving about the 20th day of April. Then Illinois was a wild country. I went to Chicago to the land sales in 1835, when Chicago was a very small town. Great numbers of the settlers came in every day to enter their lands. You could see them coming with their prairie schooners, drawn by about three yoke of oxen, through the high grass, from knee high to the top of a tall man's head, with a cloud of mosquitoes following, about the size of an ordinary swarm of bees. Chicago then resembled about as good a swamp as I ever saw.

We used to go to Chicago to do our marketing, and sell our wheat. With an ox team and a wagon, I would put on a good deal of wheat, and start for Chicago. By the time I reached Indian Creek, two or three more teams would join, and as we proceeded others would fall in, till when we reached Chicago a hundred teams would be in the train. * * * We would get forty to
2813 fifty cents per bushel for wheat, and three cents a dozen for eggs, and if we got sixty cents for wheat we thought we were doing a land office business. Our teams found plenty of excellent pasture on the prairie wherever we stopped. Crossing the sloughs was an item of excitement, and if one got stuck, we joined teams and pulled him out. Crowding Frink & Walker's stage coaches was a favorite pastime, and they soon learned to give the hubs of a six ox wagon a wide berth."

I read from the portion of the work headed "Personal Narratives," from the first narrative by the author, page 121:

"The writers of history seldom give more than the rise and fall of nations, biographies of great men, kings
2814 and princes, and but little or nothing of the common people—a matter of far more importance, and more interesting. To know the intelligence, opinions, tastes, amusements, method and means of living, routine of everyday life, the hopes and fears, which swayed and controlled a people, would be far more interesting than the life of a prince, socially far removed from, and having no feelings in common with the masses.

So, in recording the history of the pioneer settle-

ments, we cannot give a proper idea of the toils, privations, hopes, fear, anticipations, and misgivings, simply by recording the founding and growth of towns, cities and counties, progress of agriculture and commerce, but we must accompany the emigrant along his weary way, witness his parting with friends, difficulties of travel through unfrequented ways, after reaching the frontier, beyond the pale of society, his exposures and his patient industry the impression made upon his imagination by the scenery, so new and startling, the wild animals so rare, and the notes of strange birds which alone break the midday silence of his lonely home.

To endeavor to convey to the reader a correct idea of the sensation produced in the mind of the newcomer as he first became acquainted with the strange land he had come to occupy, several short narratives of the journey and first experience here, are inserted, not because they contain any startling facts or hairbreadth escapes from fire and flood or Indian barbarity, but to give a correct idea of the settler as he first occupied the unique and peculiar prairie region, as the circumstances that produced these have ceased to exist, and they can be known only by the recital of those who speak from experience."

2815 La Salle County is down over the route of which we are speaking, below the Desplaines on the Illinois river. I now refer to the same volume, on page 177, under the heading of "Hard Times," appearing on page 173.

Objection; no proper foundation laid for introduction of this passage.

2816 The WITNESS (reading):

"Hauling produce to Chicago became a common practice, to raise a little money to pay postage and taxes. The only expense paid on a trip to Chicago was the ferriage over the Illinois river, and that was saved by those living north of it. The team lived on the prairie grass and a little grain carried from home, and the driver carried his provisions, and slept in or under his wagon. They carried a coffee pot, encamped near some tree, made a fire, and lived independent. They would manage to encamp on the prairie near Chicago, go in in the morning and out before evening, never paying any tavern bills in Chicago. Wheat thus hauled sold as low as thirty-five cents per bushel, and it would take five days

to a load. With wheat given and going this cheap a man would not earn day wages. Of course no one expected to make money; to live was the only question, and hope for the future the only ambition."

On page 206, from the chapter headed "Recovery From Hard Times," I now read:

"There was one item of business that, during the years of stagnation, infused a little life into certain portions of the county; this was the line of travel between St. Louis and Chicago, which passed through the county. A steamer from St. Louis arrived at Peru daily, connecting with Frink & Walker's line of stages, that ran to Chicago, and during the summer season the route became an important thoroughfare, from four to eight four-horse coaches, leaving Peru daily. Thee building of the Chicago, St. Louis & Alton Railroad, making a
2817 direct, railroad communication between Chicago and St. Louis, effectually closed this thoroughfare, and Frink & Walker's stages sought other fields of enterprise."

I now refer to the "History of La Salle County, Illinois, 1886, Vol. 1, together with Sketches of its Cities, Villages and Towns, etc.," illustrated, Chicago; Inter-State Publishing Co., 1886.

2818 This being one of the cheaper publishing company histories, would be used by a historian with the greatest caution; would be taken as suggestive and research would be made to verify the statements there found. If the fact appeared to be in accordance with other reliable records, it would be corroborative evidence.

Q. Read the extract.

Objection; no proper foundation laid; testimony of witness shows that it is incompetent.

2819 The WITNESS (continuing): Under the head "Settlement" I read, beginning at page 210 (reading):

"Probably the largest immigration to the State, of most of the present old settlers, was in 1836. Frink & Walker's line of stages, that ran along the river, as well as a line put on by the Marseilles Company, each ramifying southwest, were the means of travel. The tide was so great that at a public house, kept by A. D. Butterfield, in Marseilles, it was not an uncommon thing to receive from $20 to $25 for meals and lodging of travelers, who, in the crowded condition of the house, had slept in the barn, on the stoop, and about the premises."

Objection; incompetent. irrelevant and immaterial.

I am now reading from page 243, from chapter 5, heading entitled "The Old Settlers' Society." (Reading):

"The first speech was delivered by a Mr. Pritchard, of DeKalb county, who was followed by President Shaver who said among other things:

2820 'I came to this State in 1830—Tazewell county, which embraced what is now La Salle county. It included all the country north of Sangamon county up to the State of Wisconsin. The Illinois river had no ferries or bridges. To cross it, you put your saddle in a canoe and swam your horse across. There were then only fifteen or twenty families in all this region. A great degree of sociability then prevalied, and the latch-string was always out, even if there was but one room in the house. I traveled much in those days, but never went to a house then but I could stop."

The WITNESS. I will omit a few lines and continue from the same speech as follows:

"I have hauled wheat to Chicago, and sold it for fifty cents per bushel, and camped out on the way. There were only four stopping places between here and Chicago. We went in groups of three or four teams, so as to help one another when we stuck in sloughs. I was here before the Black Hawk War in 1832, and have lived here ever since; was eighteen or nineteen years old when I came here. Everything has changed greatly in forty-five years, and there is no telling what the next forty-five years may do for us,"

which includes all of the quotation from President Shaver.

On page 210 of this same volume, under the chapter headed "Settlements," beginning on page 202, and on the same page of which I have read a previous reference, I read the

2821 following (reading):

"The principal market in 1836 was Chicago. Settlers would start away from home with the expectation of being gone a week or more. If it was an ordinary load only one yoke of oxen would be required, if large two or even three were employed. The provision-box was an invariable accompaniment, and the old coffee pot held a favorable position. The coffee was prepared at home, tied up in a little sack, and retained in the utensil until the strength was exhausted. By force of circumstances, the young men of those early days, became adepts in

the simpler culinary arts. When arriving at a camping place at night, the oxen would be turned loose to graze, with a bell upon their necks, or picketed out with a stake and rope. Many a chase of ten or twelve miles, or even more, to find the oxen, will come to the mind of the early settler as he reads these lines. Then, having cooked and eaten their supper, they would roll themselves in their blankets, and sleep, if the mosquitoes would permit. When they first left home they would perhaps be alone for the first day's travel, but after that there would be quite a train, each wagon slowly plodding along through the grass, sometimes knee-high, sometimes above the top of the wagon, and followed by a cloud of mosquitoes
2822 as large as a swarm of bees. These trains of ten numbered a hundred wagons before they reached Chicago. From the 'Widow Berry's' (twelve miles out) into the city, it was always swampy, often the water was knee-deep. Whenever a slough was to be crossed it was an item of considerable interest who should get out safely. Should anyone be so unfortunate as to get his wagon fast in the mud, or get 'sloughed,' as it was called, the others would unhitch from their wagons and draw him out. Selling their wheat for what they could get, they would load up with lumber and return. Many a house in the early days was constructed from lumber obtained in this way."

Further, in relation to the means of transportation in the Illinois river and Lake Michigan, I now refer to a newspaper, "The Peoria Register," April, 1837, to November 30th, volume from the Chicago Historical Society, heretofore referred to by me.

2823 In the issue of April 29, 1837, from editorial headed "The Military Bounty Lines," I read the following (reading):

"A water communication may be easily opened between the Illinois river, and Lake Michigan, by means of a canal. To effect this object 300,000 acres of land were donated to the state by an act of Congress in 1827; and the legislature at the last session passed a law authorizing a loan of $500,000.00 on the credit of these lands, and appointed commissioners to carry this object into effect. It is expected that active operations will be commenced some time during the present season. This communication between the Illinois river and the lakes,

must eventually greatly increase the value of the bounty lands, by affording a choice of markets for their products, either at Chicago, Detroit, Buffalo, New York, Montreal or Quebec, by way of the Illinois canal and the lakes, or by the natural channels of the rivers at St. Louis, and New Orleans.

It is presumed that the Illinois may be ascended by loaded boats with more facility, than any of the rivers in the west, the current being unusually gentle, and not in the general exceeding two miles an hour—the surface is smooth and the water deep and remarkably clear; and there are but few sandbars, and no rapids, rocks, sawyers or snags, until you reach the 'Starved Rock,' about one
2824 mile above the town of Utica. Here you meet with the first permanent obstruction, being a ledge of sandstone rocks, immediately the foot of the lower rapids, and extending entirely across the river. The town of Utica may therefore be justly considered as the head of steamboat navigation of the Illinois river, although steamboats in high water frequently ascend as high as Ottawa, the seat of justice of La Salle county, at the mouth of Fox river. The main width of this river is about 400 yards."

In this same volume and in the paper, the "Peoria Register and Northwestern Gazetteer," dated July 28, 1838, occurs an advertisement which I shall read into the record. This advertisement has a picture of a steamboat on it and the heading says

"Mail Packet. The U. S. Mail Steam Packet Frontier, will run regularly during the remainder of the season between Peoria and Peru.

Leaves Peoria daily, Sundays excepted, at 8 a. m., and arrives at Peru at 4 p. m., where travelers for Chicago will take the stage immediately, and arrive next day at 10 a. m. Time 26 hours.

Returning, passengers will leave Chicago daily at 9 p. m., arrive at Peru next day at 5 p. m., the hour for the departure of the Frontier, and reach Peoria next morning at 3, every day except Sunday, in time for the stages that leave Peoria for all the various points.

2825 For freight or passage apply on board, or to
Forsyth & Co., Peoria.
Townsend & Kinney, Peru.
Extras will be furnished at the shortest notice.
Frink, Trowbridge & Co.
July 21, 1838. Proprietors."

Further references in this volume upon the methods of transportation between the Illinois river and Lake Michigan are as follows: Peoria Register and Northwestern Gazetteer, for October 13, 1838 (reading):

"Towns on the Illinois River
With their distances from Peoria.
W. stands for west side; E. for east side.
Up The River.

2826	Detroit	W.	6 miles		4 houses.
	Rome	W.	12	18	25 houses.
	Allentown	W.	1	19	3 houses.
	Chillicothe	W.	2	21	30 houses.
	Lacon	E.	12	33	55 houses.
	Henry	W.	12	45	5 houses.
	Webster	W.	8	53	5 houses. (Putnam pop. 700; co. seat of. 4 houses
	Hennepin	E.	4	57	
	Enterprise	W.	12	69	4 houses.
	Peru	W.	2	71	Population 150.
	Rockwell	W.	3	74	8 houses.
	Utica	W.	5	79	1 house. (La Salle pop. 800; co. seat of.)
	Ottawa mo. of Fox river		11	90	
	Chicago by land		80	170."	

The 170 would be the total distance from Peru to Chicago, 90 miles by water and by land from Ottawa to Chicago, 80 miles.

2827 In addition to advertisements in Chicago papers of routes of transportation between the Illinois and Lake Michigan and forwarding agencies advertising to take goods from Chicago down, I find in this Peoria paper advertisements of forwarding agents from the Illinois river to Chicago and to the east. Peoria Register and Northwestern Gazetteer for June 15, 1839 (reading):

"John H. Kinzie David Hunter

Western Transportation.

Kinzie & Hunter.

Forwarding and Commission Merchants, Dealers in Produce, Provisions, &c.

Chicago, Illinois.

Liberal advances made on property consigned to them, and strict and personal attention paid to the safe handling of all goods to be forwarded.

Agents of the following lines on the Erie canal.

Troy and Erie.—R. Putnam, Agent, No. 33 Coenties Slip, New York; G. P. Griffeth & Co., Troy, New York; Farwell & Herrington, Utica, New York.

2828 Griffeth and Fisk, Rochester, New York; Coit, Kimberly & Co., Buffalo, New York.

United States—D. Northrup, Agent, No. 22 South Street, New York; H. Pease & Co., Albany, N. Y.; Griffeth & Co., Troy, N. Y., James H. Fish, Rochester, N. Y.; Coit, Kimberly & Co., Buffalo, N. Y.

New York and Ohio—N. Cook, Agent, Corner of Broadway and Water Streets, N. Y.; Russell & Howes, Buffalo, N. Y.

Detroit Line.—A. Ringe, Agent, Number 19, Coenties Slip, N. Y.; James C. Woodward & Co., Troy, N. Y.; M. Kingman, & Co., Buffalo, N. Y.; Gray, Gallaher & Co., Detroit, Mich.

Steamboats.—James Madison, Thomas Jefferson, DeWitt Clinton, Buffalo, Constitution, Erie, United States, Gen. Wayne, Washington, Com. Perry, Fulton, Townsend, Cleveland, Bunker Hill, &c.

The above lines having more steamboats running on the upper lakes than on other lines, and having an abundant supply of canal boats on the Erie Canal, are enabled to insure the delivery of goods from New York at Chicago, in from 15 to 20 days. Be particular to inquire for the proper agents, and have packages marked 'Care of Kinzie & Hunter, Chicago, Illinois.'

2829 N. B. A fine steamboat will leave for Buffalo, New York, every other day. Usual trip down, 5 days.

Chicago, May 11, 1839.

Pd. $10."

In the issue of December 2, 1837, of the "Peoria Register" is an editorial entitled "Travelers' Letters," as follows (reading):

"We are oftentimes amused at the ignorance displayed by eastern letter writers who attempt a description of this country after a flying excursion through it. Their misstatements are to be attributed to their credulity, in believing all they hear, without considering the claims of the narrators to veracity. On reaching the Ohio river, they see a new world around them, and begin to ask questions of all they meet. If in a steamboat, they plague and worry the captain, and if he minds his own business, and attends to the management of his boats rather than to them, they set him down as unaccommodating and churlish; whereas, if, being a wag, seeing their gullibility, and disposed to quiz them, he spin a long yarn about the relative merits of the west,—lauding some points and depreciating others,—they set him down for a marvelously clever fellow, while all the time he is poking fun at them.

2830 Equally mistaken is the tourist as to the states whence these families have immigrated. It will be seen that there are more from Virginia than from any other state, and nearly twice as many from it as from the whole of New England. We think he had better, the next time he travels, keep his 'letters' to himself. If he should see these remarks he will probably think so, too."

Objection, this is clearly an unsworn opinion of an editor of a newspaper, as to the veracity of somebody whose identity does not appear.

The WITNESS (continuing): In the issue of June 8, 1839, there is an editorial "A Traveler in Illinois." (Reading):

"The following letter, which appears in the Boston
2831 Morning Post, is written in a sprightly tone, and is as accurate as most of those which are written after a stage coach glance at a country. The remark about the scarcity of water in Bureau County, may leave an impression that that element is hard to obtain in this portion of our state. This is not the fact. If the story be true, it is no disparagement in the country. Water is generally obtained in the prairies by digging from twelve to twenty feet."

2832 Other references on the method of transportation from the Illinois river to Lake Michigan are as follows: "History of Grundy County, Illinois," illustrated; 1882. History from the earliest settlement to the present time, embracing its

topographical features, and so forth, biographical
2833 sketches, and so forth. Chicago: O. L. Baskin & Co. Publishers, Lakeside Building, 1882. This is a county history; one of the lower grades of historical sources. The evidence, if properly corroborated by authorities, would assist in drawing a conclusion, but the emphasis of weight would be placed upon the more reliable authorities.

Objection, no proper foundation laid for its introduction.

The WITNESS (continuing): I read from Chapter 4, entitled "Social Development—Early Society—Rise of Church
2834 and School—Indian Trails and Early Roads—Railroads and the Canal—The Newspapers."

On page 152 of that chapter I shall read into the evidence the following (reading):

"There was a market at Chicago at this time, where a fair price could be had for the surplus crop, and the growth of the older settlements further south brought the advantages of civilization nearer to these outlying communities, but the lack of roads prevented the early enjoyment of these privileges.

The early lines of travel were along the Indian trails. These were clearly defined paths about a foot or eighteen inches wide, cut into the sod of the prairie, sometimes to the depth of ten or twelve inches. A portion of one of these trails can be seen now on the farm formerly belonging to Jacob Claypool, where it has been carefully protected by a furrow plowed upon either side of it. There were three of these following the general course of the river through the country, and terminating at Chicago, which was at an early time a great resort of the Indians. One of these ran along the north side of the river, between it and the present site of the canal up to
2835 near the five mile bridge then passing north of the line of the canal, but south of the Catholic cemetery, it crossed both branches of Nettle Creek near where the stone bridges now stand, thence recrossing the canal line near the Peacock bridge, and passing on the ridge through to the Protestant cemetery, it crossed the Au Sable below the aqueduct, and thence through Dresden it took its course over the bluffs towards Channahon. Another on the bottoms south of the river crossed the Waupecan Creek at the quarter corner of the east line of Section 18, in Wauponsee township, thence nearly in

a straight line, passing twenty rods north of the center of Section 17, it continued to Spring Creek which it crossed at its mouth, and thence it led across the Mazon on Section 16, and up the river, crossing the Kankakee one-half mile above its mouth. There was a second trail on the south side of the Illinois river, which skirted the points of timber, passed a little north of the present residence of Jonathan Wilson on Section 4, 32, 6, and entered Wauponsee about the center of the west line of the southeast quarter Section 20, continuing thence in a direct line and intersecting the first trail at the crossing of the Mazon river. There was a 'high prairie trail' through Holderman's Grove north of Grundy County, which came to be an important line of travel."

On page 155 in the same chapter, a little farther along, I have another reference which pertains to the same subject (reading):

2836 "The northern part of the State has settled up so slowly that there was no thoroughfare through Grundy County at all until about 1833. About this time the Bloomington and Chicago road began to be outlined by the droves of live stock going to market, and the return teams hauling salt and supplies. This soon became the principal route of travel, and crossed the county through the northern part of Highland, passed old Mazon and crossed the Mazon River at Sulphur Springs, on section 6, Braceville. From this point it led to the Kankakee River at 'Cousin John Beard's ford,' about a mile and a half from its mouth. This road was not officially laid out or worked until after the county of Grundy was formed, when the commissioners at one of their earliest meetings ordered it run out from 'Lone tree point to Counsin John Beard's ford at the crossing of the Kankakee.' It was subsequently worked, and in 1843 a bridge was erected over the Mazon, where the road crossed, but it was soon destroyed. It was the earliest and greatest thoroughfare of its time, but it did not reach the dignity of a mail route, and has long since been abandoned. In December of 1834, the commissioners of La Salle County appointed Henry Green, Benjamin Bloomfield, and Sam'l S. Bullock to lay out a road from Marseilles toward Joliet. This was laid out as near as practicable along the Indian trail nearest the north bank of the river. This was afterward divided into three divisions,

2837 and Wm. Ruhey appointed supervisor of the western division, Wm. Hodge, or the middle division, and Joshua Collins of the eastern. On July 3, 1839, the 'Shaking Bridge' was erected near where the present stone bridge spans the west branch of Nettle Creek on Jefferson street in Morris. To raise this early bridge required the united energies of most of the men in the country about, and was probably the first bridge erected in the county. It was hoped that this road would prove to be the route for the north and south travel of the State, and upon such expectations Lovell Kimball of Marseilles laid out the village of Clarkson on the southeast quarter 12, 33, 6, with a double log cabin hotel as a nucleus about which to gather the expected city. This village aspired to county honors, until the construction of Grundy blighted all such hopes, and remained even then the principal village in this region until the location of the county seat at Morris, when it rapidly went to decay. At Dresden, on the other end of this road in Grundy County, Salmon Rutherford erected a large 'framed' hotel, where by license of the court he was allowed to charge the following scale of prices:

For each meal, common	25	cents
" " " extra	37½	"
" " lodging	12½	"
" " horse or ox, hay over night	12½	"
2838 " " 8 quarts corn or oats	25	"
" " each glass of spirits	6¼	"
" " " " " extra spirits	12½	"

For this privilege he paid $6 and gave a bond of $100 for the faithful performance of his obligations. Another of these early hostelries was erected about this time on the west fork of the Mazon, and was kept by James McKean, and was for a considerable time the resort of drovers on their way to market with stock.

The division of the large northern counties and the demands of the local communities led to great changes in these early highways. Roads were run with some reference to the farmers who lived along the lines of these 'through routes,' which led, not without an occasional serious struggle, to their abandonment. The result of these changes was to establish the main line of through travel along the high prairie trail by way of Holderman's Grove, etc., on which Frink and Walker

subsequently established a line of coaches running between Chicago and Peru. From four to eight four-horse coaches left each terminal point daily, connecting at Peru with a steamboat from St. Louis. Neil, Moor & Co., and Ohio firm, ran a line of coaches between the same points following a route south of the river, but it proved but a short-lived competition, though vigorous while it existed. The latter firm failed and withdrew its coaches in a short time. But with all these improve-
2839 ments, Chicago, which had become the market for this section, was too far off for the means of transportation possessed by the farmers. Everything was hauled in wagons and the roads were stern autocrats of the pioneer's destiny. The treacherous sod that covered the long stretch of swamp about the city would bear up only a moderate load, and thus restricted the amount of produce to be taken by a single wagon. Add to this the rude construction of the best roads and there is a sense of discouragement that might have worked despair if it had not incited to improvement. It may be noticed here that the civilization of the broad tread wagon and that of the narrow-tread, met at the eastern line of Grundy County."

I now refer to the "History of Fulton County, Illinois, together with Sketches of its Cities, Villages and Townships, etc., Digest of State Laws. Illustrated. Peoria: Chas. C. Chapman & Co., 1879."

2840 The trained historian would use this book and cite it as authority when quoting from it. It is a low class history parts of which would be more valuable than others. As the preface indicates, the book covers a large number of subjects, and no one man can be a specialist on all of them. He may have been on some. You would have to examine the particular excerpt to find out whether or not it was valuable.

I read from the "History of Joshua Township," on page 725.

Objection, no proper foundation laid.

The WITNESS (reading):

2841 "Moore purchased land in what is now Joshua township, and gave the township its name. Ellis afterwards moved to Ellisville, which township was also named in his honor. He built a mill at the present site of Ellisville. Both of them were prominent and useful men,

and possessed of great influence among the people at that early day. Moore died in 1853.

Mr. Levi G. Ellis first settled in this township and erected about the first mill in the county. A few years later he moved to Ellisville and Joseph H. Gardiner bought his farm and mill in Joshua. Mr. Ellis had erected a steam saw and grist mill in Joshua, the first in the township and in all probability the first steam mill in the county.

Mr. Ellis had previously run a water mill on Put creek, which was swept away by flood in 1835. Mr. Gardiner did a large business and for many years shipped flour to New York City. He made flat-boats upon which he would float his produce to St. Louis, starting from Copperas creek landing. After these boats were unloaded he would sell them to go further south. At one time he built a thirty-ton keel-boat, and carried it on wheels to Cooperas creek, where it was launched. When the Illinois river was low and he could not run a boat to St. Louis he would take a team of four yoke of oxen and a
2842 team of horses and put on about 100 bushels of wheat and start for Chicago, where he would get 60 cents to 62½ cents per bushel, when wheat would only bring 25 cents at home. It would consume a month's time to make these trips. He would return with dry-goods and other necessaries. These trips as we may well suppose were very tedious. The roads in some places crossed sloughs and were difficult to get over. At such places they would be obliged to hitch sixteen to eighteen yoke of oxen to one wagon and pull it across, the wagon sinking often to the box. This they were able to do as there would be generally from fifty to one hundred teams in a train going to market. They camped out on the prairies every night. They turned their oxen out to graze but tied them up at dark. Mr. Gardiner said it seldom cost any money to make the trip, but on one occasion there had been a prairie fire and in consequence they were obliged to buy corn from the settlers along the route. This cost him about $3 for the round trip, consuming a month of time."

My next reference is "Past and Present La Salle County, Illinois. Illustrated. 1877. Chicago: H. F. Kett & Co., Cor. 5th Ave. and Washington St."

2844 From the introduction, it appears that the author used care to procure accuracy by selecting able and intelligent assistants, but they were not trained historians, and the book would be classed in the lower grade of histories. It would be used critically.

Objection, no proper foundation laid.

The WITNESS (reading page 196):

"At the latter period (1842) the canal was completed as far as Marseilles from La Salle, and from Chicago west to about Morris. The holders of the 'Improvement Bonds' became reassured, and, in order to save what they had already expended, subscribed liberally for the completion of the work. The prospect of avoiding the long and tedious trip to Chicago to market grain, and the cheapening of commodities needed by the people, had a wonderful effect to induce settlers to locate here. As an instance of how the canal was regarded, we may mention the following. The first loaded boat through the canal was the 'Goldona,' A. J. Hobart, captain. It cleared Chicago with a load of lumber, and arrived at Ottawa on Sunday afternoon about three o'clock. The
2845 people saw it coming and ran to meet it at the aqueduct, cheering all the way into town. Lumber at that time sold for $60.00 per thousand. This load reduced the price to $30.00, and the second or third reduced it still further. The boat carried back a load of wheat, at 12½ cents per bushed. That fall freight fell to eight and finally to six cents, and the following season to four cents.

The canal proceeded to completion in the spring of 1848, and the Green and Red lines of packets were put on. As the horses drawing them trotted along through the country, it seemed a decided improvement to the settlers over the old ox team, beset by mosquitoes, and moving at snail's pace, without mentioning the inconveniences incident to camping in all kinds of places, as well as hunting stray oxen in the morning. Traveling was placed among the luxuries."

2846 Continuing as to the value of this as an authority, a historian would take the particular evidence he was going to use and submit it to an internal test to find out its value; he would learn whether the writer was capable; whether he knew the fact of which he spoke; whether he had good

judgment and could state his observations, and whether or not the writer was a trained historian.

2847 Q. If it should appear that in these various county histories taking up the several counties along this route and along these rivers, the narratives agree as to the methods in which transportation was conducted at the period, would the fact that there was a common agreement among them, be given weight by historians in determining what the fact was as to the method of transportation?

Objection, incompetent, immaterial and irrelevant.

A. There would be a stronger presumption in favor of the fact than there would be if you simply found the one statement, but to base a conclusion even upon that he would have to submit those facts to the test before he would be warranted in drawing a conclusion.

Q. Suppose it should further appear that all living witnesses who have been called in a case involving the same question, speaking as of that time, agreed as to the method of transportation with those county histories, would that throw any light upon the weight to be attached to the county histories?

Objection; same as above; and that question is hypothetical, without foundation in the record.

2848 A. It would make for a stronger presumption if these men were speaking of the period in which they lived, concerning which they knew; if they all agreed, it would be evidence leading to a conclusion.

2849 I have been prepared for the work of criticising historical matter and historical writings by studying the historical methods of Langlois and Seignobos, and have been in Seminar methods where the work was testing the proposition of using sources correctly. I did a year of that work under Professor Wilcox at Iowa University; worked along that line under Professor McLaughlin in my graduate work at Chicago University; and in connection with Seminar work there under Professor Merriam. The object of the method is to get the facts as they existed as near as possible, from the study of the original sources; the distinction from secondary sources, which would be works and conclusions of men based on original documents.

2850 To find out whether a writer knew concerning the thing which he stated, would find out whether he was writing to prove some definite point or not. If he was then facts he would bring out in that connection would be conscious

evidence, in which he might possibly misconstrue. If on the other hand he should admit something which would be damaging to his evidence that would be accepted more readily than would the conscious evidence, in distinction from the unconscious evidence admitted. To try to get the attitude and bearing of the writer, to get him located with relation to his time.

2851 Another distinction would be the evidence that would come to one apart from human agencies or conclusions, as relics, have come down to us from the past, find out what evidence they had, such as writings on monuments; I would use them in reconstructing the past.

On page 295 of the transcript appears the statement that Keating, who wrote of an expedition to St. Peter's river, should be given considerable weight because he was a professor at the University of Pennsylvania, and capable of making observations and stating what he had seen.

2852 I have examined the work which is entitled "Narrative of Expedition to the Sources of St. Peter's River, Lake Winnepeek, Lake of the Woods, Performed in the Year 1823, by order of the Honorable J. C. Calhoun, Secretary of War," and have read the excerpts from that work appearing on pages 295 to 297, inclusive, of the transcript. I have made an examination of Keating to determine his accuracy as an observer and recorder of things of which he wrote.

2853 When I came to verify them I found some statements which did not square with those made by other and authoritative books, or with facts well known. The title page of the edition I hold reads "Narrative of Expedition to the Source of St. Peter's River, etc., Performed in 1823. In 2 volumes. Vol. 1. London: Printed for Geo. B. Whit-
2854 taker, Ave-Maria-Lane. 1825." I find this statement an indication of inaccuracy as to conditions about Chicago (reading page 176):

> "We crossed the Desplaines about four miles above the Portage road; it was forty yards wide, and so deep that part of our baggage was wet while fording it, but fortunately none materially injured. The length of the Desplaines from this ford to its source is about fifteen miles, that to its confluence with the Kankakee about forty miles."

In this statement he makes the total length of the river 55 miles, where, as a matter of fact, the Desplaines is over 55 miles above the ford, while it is about 40 miles from the

ford down. The Desplaines river rises in the southern part of Wisconsin, just north of the state line.

2855 On page 164 of this book I find statements which do not compare with Schoolcraft's account of the same description. Schoolcraft is an accepted authority on this period. Neither does this fact agree with facts well known today (reading page 164):

"We were much disappointed at the appearance of Chicago and its vicinity. We found in it nothing to justify the great eulogism lavished upon this place by a late traveller, who observes that 'It is the most fertile and beautiful that can be imagined. As a farming country,' says he, 'it unites the fertile soil of the finest lowland prairies with an elevation which exempts it from the influence of stagnant waters, and a summer climate of delightful serenity.'"

At this point he refers in a foot-note to "Schoolcraft's Narrative Journal of Travels (Albany, 1820), page 384"

2856 (reading):

"The best comment upon this description of the climate and soil is the fact that, with the most active vigilance on the part of the officers, it was impossible for the garrison, consisting of from seventy to ninety men, to subsist upon the grain raised in the country, although much of their time was devoted to agricultural pursuits. The difficulties which the agriculturist meets with here are numerous; they arise from the shallowness of the soil, from its humidity, and from its exposure to the cold and damp winds which blow from the lake with great force during most part of the year. The grain is frequently destroyed by swarms of insects. There are also a number of destructive birds of which it was impossible for the garrison to avoid the baneful influence, except by keeping, as was practiced at Fort Dearborn, a party of soldiers constantly engaged in shooting at the crows and blackbirds that committed depredations upon the corn planted by them. But, even with all these exertions the maize seldom has time to ripen, owing to the shortness and coldness of the season. The provisions for the garrison were, for the most part, conveyed from Mackinaw in a schooner, and sometimes they were brought from St. Louis, a distance of three hundred and eighty-six miles up the Illinois and Des Plaines rivers.

2857 The appearance of the country near Chicago offers but few features upon which the eye of the traveller can dwell with pleasure. There is too much uniformity in the scenery; the extensive water prospect is a waste uncheckered by islands, unenlivened by the spreading canvass, and the fatiguing monotony of which is increased by the equally undiversified prospect, of the land scenery, which affords no relief to the sight, as it consists merely of a plain, in which but few patches of thin and scrubby woods are observed here and there."

The severe criticism of Schoolcraft's account led me to turn to that for comparison. I turned to Schoolcraft's Journal entitled "Narrative Journal of Travels from Detroit Northwest through the Great Chain of American Lakes to the Sources of the Mississippi River, 1820, by H. R. Schoolcraft. Page 153. Doric Rock, Lake Superior. Albany Publishing Company, by E. & E. Hosford. 1821."

2858 In this book, on page 384, dated August 30, a journal which he kept, he says (reading):

"The country around Chicago is the most fertile and beautiful that can be imagined. It consists of an intermixture of woods and prairies, diversified with gentle slopes, sometimes attaining the elevation of hills, and irrigated with a number of clear streams and rivers, which throw their waters partly into Lake Michigan, and partly into the Mississippi river. As a farming country, it unites the fertile soil, of the finest lowland prairies, with an elevation, which exempts it from the influence of stagnant waters, and a summer climate of delightful serenity; while its natural meadows present all the advantages for raising stock, of the most favoured part of the valley of the Mississippi. It is already the seat of several flourishing plantations; and only requires the extinguishment of the Indian title to the lands, to become one of the most attractive fields for the emigrant. To the ordinary advantages of an agricultural market town, it must, hereafter, add that of a depot, for the inland commerce, between the northern and southern sections of the union, and a great thoroughfare for strangers, merchants, and travellers."

2859 I find a contemporary reference to Keating in Senate Documents, 1st Session, 24th Congress, 4, 1835-36, 353 282, which book is the property of the John Crerar Library. On the title page appears "Public Documents printed by

order of The Senate of the United States, First Session of the Twenty-fourth Congress, etc." Among these documents I find a report of the Geological Reconnoissance, Made in 1835, etc., by G. W. Featherstonehaugh, U. S. Geologist. Doc. 333. Printed by order of the Senate, By Gales and Seaton, 1836 (reading page 128):

"Beyond Ball-game river, on the left bank, is an important stream, named Black river, down which stream a great deal of fine pine timber is floated. The country all around here is remarkable for its fertility and beauty. The most conspicuous locality on this portion of the
2860 upper Mississippi, is a place called by the French La Montagne qui trempe, a l'eau, or the mountain which is steeped in the water. I ascended to the top of this peak, which has a steep ascent of about 500 feet; the crest at the top runs about north and south for 200 yards, and is not more than three or four yards wide, falling off in a precipice to the west, and having a sharp slope of rich soil to the east, well covered with trees and shrubs. From the top there is an extensive view of the course of the Mississippi and the country in the interior beyond its banks. The same constant character of the valley is observed here; a rich bottom, two or three miles wide, broken into islands and swamps and ponds, and the main channel of the river flowing down between Trempe a l'eau and the right bank, about 1,200 yards wide. This curious peak has been represented as a 'rocky island, separated from the left bank of the river,' and to be 'very near the east bank of the river.' This error was no doubt occasioned by the writer's looking at it from the right bank, and not stopping to examine it. It is, in fact, an isolated bluff, about a mile and a quarter in circumference, separated from the right bank, and not from the east, the intervening space being occupied by the present main channel. From the top of Trempe a l'eau, its whole history is seen at a glance; the eastern bluffs are distant at least five miles from it, and in one
2861 part recede still more; an extensive prairie, having few or no trees, extending east and west about twenty-five miles, and from five to six miles wide, north-by-east, by compass, separating this out-lier from those bluffs to the east."

Page 135:

"The fort is built upon the bluff, which overlooks both

the Mississippi and the St. Peter's, resting upon grayish, buff-colored, fossiliferous beds of the carboniferous limestone, containing zoophytes, many specimens of large orthocera, fragments of which measured a foot long and more than four inches wide. The faces of some of the rocks are covered with fuci, and in some beds producta form almost the body of the rock. These fossiliferous beds are separated from the great sandstone beds of the country, which here go far below the level of the river, by a thick stratum of eighteen feet of compact subcrystalline limestone without fossils. Below this stratum nothing but sandstone appears."

A foot-note refers to Keating, as follows (reading):

"In Mr. Keating's narrative of Major Long's expedition to the source of St. Peter's river, before referred
2862 to, it is stated, vol. 1, page 308, that this sandstone rests upon a slaty limestone, with a striped aspect, and that again upon other calcareous beds lying beneath the water level. This error is to be attributed to a hasty examination. As the bottom of the talus are heavy blocks of limestone, many of which lie flat in the river, but they have all fallen from the top. I not only compared and identified them, but examined the sandstone often at leisure, and it is never superincumbent to any bed of limestone there, descending much further below the water-level than it was possible to examine it."

On page 137, I find an incidental reference which simply goes to point out the inaccuracy of Mr. Keating (reading):

"The general direction of the river, as far as the Makato or Blue-earth river, is about southwest; from
2863 this point it bends and describes nearly a northwest course to its source. Numerous chiefs of bands of the Nacotahs have their villages on its banks, where they reside during the season of cultivation; and which are evacuated by them and their families during the hunting seasons."

At Nacotahs a footnote is referred to, and the footnote is given at the bottom of the page. I will read that into the record. (Reading):

"In Major Long's expedition to the source of the St. Peter's river, these Indians are uniformly called Dacotahs. I made particular inquiries amongst the chiefs, through my interpreter, and they all concurred in the assertion that their proper name was Nacotah. This

word means a united or allied people. Dacotah means 'My relations'."

A further reference as to Keating's accuracy is in "Schoolcraft's Thirty Years with the Indian Tribes. With Brief Notices of Passing Events, Facts and Opinions, A. D. 1812, to A. D. 1842. Philadelphia. Lippincott, Grambo And Co., Successors to Grigg, Elliott & Co. 1851."

2864 On page 525 is an extract from a letter written by Mr. Featherstonehaugh to Schoolcraft. (Reading):

"I found Mr. Keating's account of the Mississippi, and especially of the St. Peter's, most surprisingly erroneous, and old Jonathan Carver's book, which he is constantly denouncing, very accurate.

I ascertained, to my perfect satisfaction, the termination of the horizontal beds of sandstone or carboniferous limestone formation, and came upon the outcrop of the adjacent granite, just where I expected to find the primary rocks."

Have read the extract from Keating appearing in Alvord's testimony, transcript pages 295 to 297, inclusive, and studied it to determine what weight it can be given, or what conclusions can be drawn from it as to the navigability of the Desplaines river.

2865 Q. What conclusions have you arrived at, and why? Objection, incompetent, immaterial and irrelevant; witness not shown to be qualified to state conclusion.

A. The carelessness revealed by Keating in his narrative along the Mississippi and St. Peter's rivers, leads one to the conclusion that he was careless in all his work. Featherstonehaugh, who criticises him, was in the employ of the Government, and a man of equal standing; had traveled in the United States, and made a trip by way of Lake Michigan, Fox and Wisconsin rivers to Fort Snelling. He was employed by Great Britain in the Webster-Ashburton controversy. He was a man who would make conservative statements, which leads one to think that the errors he points out were worth noticing. After finding such evidence of Keating's care-

2866 lessness, historians would not accept him without corroborating evidence. Keating's conclusions concerning the Desplaines are based on a hasty examination. He only went to the Desplaines and did not go down that river. His statements in regard to it were from his viewpoint; made at the time of high water.

His narrative states he went to Mud Lake in a canoe; that

this is possible in times of high water is proved by Hamilton's Hubbard, page 39, Volume 2, page 215 of this same work, also indicates it must have been high water.

2867 Keating's conclusions as to the use of the Desplaines are based in part upon Hopson's statements concerning his own use of the river.

2868 I read from "Keating's Expedition to the St. Peter's River," Vol. I, page 168. (Reading):

"Lieut. Hopson, who accompanied us to the Desplaines, told us that he had traveled it (referring to the portage, no doubt) with ease, in a boat loaded with lead and flour."

If Hopson traveled it with ease, and at a time when he could travel from the Desplaines river to the lake, he must have done so at high water.

Motion to strike out, as mere conclusion of the witness, on the ground that he makes the unequivocal statement that Hopson said that he had used it in high water, and now he underetakes to state that Hopson did not say it was in high water, but his conclusion is, it was in high water.

2869 The WITNESS (continuing): I have examined the excerpt from Vol. 4, Wisconsin Historical Collections, pages 162-163, appearing in Alvord's testimony on transcript page 278, from a chapter entitled "Recollections of Wisconsin Since 1820, By Col. Ebenezer Childs, of La Crosse."

Q. What conclusion can properly be drawn from the narrative, as to the navigability of the Desplaines river?

Objection, incompetent, irrelevant, immaterial. Witness not shown to be qualified to state such conclusion.

2870 The WITNESS (continuing): It adds nothing in proof of the navigability of the Desplaines during ordinary times, since at the time he passed over the route there was two feet of water on the open prairie. (Reading, page 163):

"We continued up the Illinois to the junction of the Kankakee and Eau Plaine, and thence up the Eau Plaine to where I supposed we had to make a portage to Chicago River, but I could not see any signs of the portage. There had been heavy rains for several days, which had so raised the streams that they overflowed their banks. I concluded that I had gone far enough for the portage, so I left the Eau Plaine and took a north-east direction. After traveling a few miles, I found the current of the Chicago River. The whole

country was inundated; I found not less than two feet of water all the way across the portage."

Childs made that trip in a bark canoe. The context says:

"In 1821 I made a trip to St. Louis in a bark canoe up
2871 Fox River, across the portage, and down the Wisconsin to Prairie due Chien, and thence down the Mississippi."

As to the persons in the canoe, he says, page 163:

"I started by that route (referring to the Illinois River) and the next day was taken down with the ague and fever, and the day following one of my men was also taken with the same complaint, which left me with one Indian and one Frenchman to paddle my canoe."

As to the load carried, he says:

"I did not provide a sufficiently large stock of provisions when I left St. Louis, presuming that I could get plenty on the Illinois."

I have examined Morse's American Gazetteer, 1797, portions of which are cited by Alvord at page 310 of the transcript.

2872 It begins on page 310, the preface to the book, and the citation extends to page 315, where it says:

"The Chicago River, also at the S. W. extremity of Lake Michigan, furnishes a communication interrupted by a still shorter portage, with Illinois River."

2873 May I make one correction to my answer a few minutes ago; you asked me if I had studied this 1797 edition. I studied the edition of 1810. The context seems to be the same judging from this.

Q. Will you, referring to the portion which names the Plein river, state the result of your analysis of that portion?

COUNSEL FOR GOVERNMENT. Same objection.

COUNSEL FOR DEFENDANT. I am referring particularly to this language appearing at page 312 of the transcript of Professor Alvord's testimony:

"The Illinois furnishes a communication with Lake Michigan by the Chicago River, between which and the Illinois are two portages, the length of which do not exceed four miles."

If your question is in regard to whether I have read that evidence, I would say I have, and the result of my analysis of it from conclusion is, that I read this evidence and to find out whether it was evidence that could be relied upon I examined the book somewhat to find out the nature of the book and what it was, and my conclusion was that it was simply a

gazetteer, a compilation of information gathered from different sources, as is evidenced by the nature of the book
2874 itself and by the title page. I further examined it then, since it was a compilation, to find out if I could what that particular evidence was based upon. I turned to the preface to learn if there was any information given there in regard to the source of his authority. One usually finds some statement in regard to that in a preface. I turned to the preface then and I learned on the first page of the preface to the first edition the following:

> "Soon after the plan of this work was conceived, and some little progress made in collecting materials for its accomplishment, the author was informed that Captain Thomas Hutchins, then Geographer General of the United States, contemplated a work of the same kind; to him, as being from the nature of his office, far more competent to the task, he cheerfully resigned his pretensions, and made him a tender of all the materials he had collected. But, with a kindness and generosity which flowed naturally from his amiable and noble mind, Captain Hutchins declined the offer, relinquished his design, and put into the hands of the author all the collections he had made, together with his maps and explanatory pamphlets, which have contributed not a little to enrich this work."

COUNSEL FOR GOVERNMENT. This is found on page 310 and page 311 of the record, and was put in by us.

2875 As to whether I find any internal evidence as to whether the particular sentence which was read to me by counsel, was taken from Hutchins, I would say I do. I have made a comparison of the extract which pertains in subject-matter to the Illinois and Desplaines rivers to find out the statements made in Morses Gazetteer, and also to find out how they compared with the work of Hutchins that deals with that point. Turning to the 1797 edition, I find in the article under this sub-heading, "Illinois," in Morse, the following:

> "The Illinois River furnishes a communication with Lake Michigan by the Chicago River between which and the Illinois are two portages, the length of which does not exceed four miles."

I compared that with Hutchins, Topographical Description of Virginia, page 42. Hutchins' work was published in London in 1778. The passage appears on page 168 of the record.

2876 Page 485 Imlay's America, begins: "Topographical Description of Virginia," and on page 503 of that work, I find the following:

"The Illinois River furnishes a communication with Lake Michigan by the Chicago River and by two portages between the latter and the Illinois River, the longest of which does not exceed four miles."

As to whether the mere repetition would give it any more weight, I would say, not if evidence to the contrary was found. Hutchins might be reliable and might not be reliable, it would depend wholly upon whether Hutchins was a reliable authority or not.

2877 The wording is practically the same, and while it does not lead to a positive conclusion, it certainly approaches one and this is that Morse's Gazetteer was based on Hutchins.

I have examined the extracts from Woodruff's History of Will County, Illinois, 1878, heretofore referred to in Alvord's testimony, transcript page 340, concerning which Alvord 2878 has testified that the author was Woodruff who had a good reputation as a local historian. The particular passage is found at page 687 and begins "Again the Kankakee being navigable for small steamers." The portion referred to by Alvord was not written by Woodruff. The preface states "The General History of the country was compiled by the Honorable George H. Woodruff of Joliet, and the township history is by our historians, W. H. Perrin and H. H. Hill." The excerpt appears in a history of Custer Township. Woodruff wrote the general county histories, and the township histories were written by the publisher's historians, whose name appears on the title page as William Le Baron.

2879 I would use this just as I would any of those other county histories; I find out the competency and reliability of the writer of the particular excerpt.

2880 The author refers to no authority upon which the alleged facts stated are based.

Q. What have you to say as to the allegations of fact therein contained in the light of other historical evidence on the subject?

Objection; incompetent, irrelevant and immaterial; witness not qualified.

A. I should not accept the statement that "Small steamers owned by Messrs. Small, of Wilmington, and Stephen F. Hanford, of Warner's Landing, ply regularly between these

points and Chicago, carrying to that city corn, oats, rye and other products, and bringing back lumber, salt and other heavy articles." Have no particular references in mind to refute that, other than the line of evidence submitted yesterday that the transportation from the lower regions to Chicago did not come up by steamer from the Illinois river after the time steamboats were in use. It came in some other method.

2881 In my search of the Illinois township histories, have found no other evidence of statements pointing to the use of the Desplaines river, so far as either describes its use.

Q. In the light of the fact and of the references that you have given here to the method of conveying grain and exports into Chicago during that period, what would you say as to whether or not that statement of facts can be accepted as a fact?

Objection; same as preceding.

A. In the light of my investigation and the evidences as to how grain, exports, etc., were hauled to Chicago in and prior to 1834, I should accept the statement "As early as 1834 the products of the farm were boated down the Kankakee to the Desplaines and up the latter river to Chicago," as an isolated case, and would not accept it on the authority of this history.

2882 When I stated yesterday that I had no particular references in mind to refute this statement, other than the line of evidence submitted yesterday that the transportation from the lower regions to Chicago did not come by steamer from the Illinois river after the time steamboats were

2883 in use, I did not mean to be understood that steamboats ever came from the lower river to Chicago before the canal. I have found no record of any such thing. As to whether there was anything in the extracts I produced yesterday which stated directly that the river was not used, would say no, other than that a number of excerpts as I now remember them which referred to the head of navigation as being at a certain point, and that they did not navigate above that.

2884 Q. You have testified in effect that the repetition in Morse of what was stated by Hutchins added nothing to the weight of Hutchins' original statement; it depended upon the sources, etc., from which Hutchins' statement was made. Was Hutchins ever in Illinois or at least in this portion of Illinois?

A. Hutchins never passed over this region of Illinois.

Motion to strike out as not responsive to the question. Whereupon the question was re-read and objected to as incompetent, irrelevant and immaterial, as being secondary evidence, and an understanding was had between counsel to the effect that the objection need not be repeated to that line of questions.

2887 A. He was not.

There is in Hutchins evidence of the sources of his information concerning this region. I read from Hutchins' Topographical Desc. of Virginia (which appears in the book entitled Imlay's America, p. 510), "The timber is generally birch, button and—" the portion I am reading is written by Patrick Kennedy, which the author states in his preface is an appendix to his book. It is entitled (p. 506) "Mr. Patrick Kennedy's Journal of an Expedition undertaken by himself and several Coureurs De Bois in the year 1773 from Kaskaskias Village in the Illinois Country to the head waters of the Illinois River."

Mr. Scott. Read from the preface what Hutchins says about the sources of the material for his work.

A. I read from the preface (p. 486):

2889 "Those parts of the country lying westward of the Allegany mountains, and upon the rivers Ohio and Mississippi, and upon most of the other rivers and lakes here described, were done from my own surveys, and corrected by my own observations and latitudes, made at different periods preceding, and during all the campaigns of the last war, in several of which I acted as an engineer, and since in many reconnoitering tours, which I made through various parts of the country, between the years 1764 and 1775.

I have compared my own observations and surveys, respecting the lakes, with those made by Captain Brehm, of the 60th regiment of foot (who was for many years employed as an engineer in North America), and I find that they correspond with more exactness than surveys usually do, which are made by different persons at different times; and I am happy in this opportunity of expressing my obligations to this gentleman, for the cheerfulness with which he furnished me with his surveys and remarks."

2890 The title page of Hutchins refers to Patrick Kennedy's Journal as being attached, as I have read into

the record. There are two or three excerpts that he gives in his experiences up the river. He says (reading p. 507):

"August 1. About 12 o'clock, we stopped at the Piorias wintering ground. About a quarter of a mile from the river, on the eastern side of it, is a meadow of many miles long, and five or six miles broad. In this meadow are many small lakes, communicating with each other, and by which there are passages for small boats, or canoes, and one in particular leads to the Illinois river; the timber in general very tall oaks. We met with some beautiful islands in this part of the river (48 miles from the Mississippi), and great plenty of buffalo and deer."

I turn then to p. 510 of the same volume and begin reading from the Journal dated August 9th:

"The timber is generally birch, button, and paccan. The wind continuing fair, about ten o'clock we passed the Vermillion river, 267 miles from the Mississippi. It is 30 yards wide, but so rocky as not to be navigable. At the distance of a mile further, we arrived at the little rocks, which are 60 miles from the forks, and 270 miles from the Mississippi. The water being very low, we could get no further with out boat, and therefore we proceeded by land to the forks. We set out about two o'clock on the western side of the river; but the grass and weeds were so high, that we could make but little way.

August 10. We crossed the high land, and at ten o'clock we came to the Fox river (or a branch of it), after walking 24 miles. It falls into the Illinois river, 30 miles beyond the place where we left our boat. The Fox river is 25 yards wide, and has about five feet water; its course is from the westward by many windings through large meadows. At three miles distance, after crossing the river, we fell in with the Illinois river again, and kept along its bank; here we found a path. About six o'clock we arrived, after walking about 12 miles, at an old encampment, 15 miles from the fork. The land is stony, and the meadows not so good as some which we formerly passed. From hence we went to an island, where several french traders were encamped; but we could get no intelligence from them
2891 about the copper mine which we had set out in search of. At this island we hired one of the french hunters to conduct us in a canoe to our boat."

So far as appears from that Journal Kennedy did not reach any point on the Desplaines higher than its mouth.

2892 As to how far below the mouth, according to Kennedy's statement, the point was at which he was compelled to abandon his boat, Kennedy said:

"At the distance of a mile further we arrived at the Little Rocks, which are 60 miles from the Forks and 270 miles from the Mississippi."

He was using a light boat. He simply says: "The water being very low we could get no further with our boat." As to what the context showed the character of his boat to be—will say to the best of my recollection they were simply light boats.

Page 60 of Hutchins description, etc., London, 1778, deals with this point.

In the narrative of an expedition to the source of the St. Peters river 1825, by Keating, I find a reference to

2893 trade on the lakes at the time of the writing of the narrative (reading p. 166):

"As a place of business it affords no inducement to the settler for the whole annual amount of the trade on the lake did not exceed the cargo of five or six schooners, even at the time when the garrison received its supplies from Mackinaw."

2894 As to whether other than Kennedy's Journal, Hutchins appends other references or authorities concerning the upper Illinois river and the distances, he says (p. 485, reading):

"With a plan of the rapids of the Ohio, a plan of the several villages in the Illinois country, a table of the distances between Fort Pitt and the mouth of the Ohio; and an appendix, containing Mr. Patrick Kennedy's journal up the Illinois river."

2895 I have read the excerpt from Darby's Tour, referred to in Alvord's testimony that he gave on pages 236 to 245 of the transcript.

Q. Do you know whether Darby was at Chicago, so far as there is any record?

Objection; incompetent, irrelevant and immaterial; not shown that the witness is qualified to state.

A. It is recorded that he went only from New York to Detroit. I have found no evidence in the book that he came beyond that point, or that he had any first hand knowledge

concerning the relation of the Desplaines to the Chicago and Illinois.

Q. Is there anything that throws any light upon the weight to be given to his statements contained therein?

Objection; same as above.

The WITNESS (continuing): On page XXVIII I find the following statement (reading):

"The following interesting notice, decides the long contested problem of a natural water communication between the waters of the St. Lawrence and the Missis-
2896 sippi rivers, and contains also some other items of valuable information."

There he refers to an editorial from the St. Louis Enquirer, and uses it as no careful historian would, basing conclusions thereon without testing it. The careful historian would take editorials from different papers, but would test them, comparing one with another, and with facts known from other sources, to determine its reliability, but Darby says that this one editorial decides the long contested problem.

2897 Q. It has been testified here that the people of St. Louis, where that editorial was published, were not interested, and that there was no motive for making an erroneous statement. What have you to say as to that conclusion?

Objection; the same.

In trying to square that with the facts as I find them to be, I found that the editorial was incorrect in this respect, that the writer of the editorial was a partisan on the question of internal improvement, that the readers themselves would naturally be partisan in regard to the editorial for in reading the editorial itself I learn that it states that it would open the lakes,—I cannot give the exact wording,—into St. Louis, so that the advantage would come to St. Louis, and an editorial that was written with the idea of promoting a scheme of internal improvement would naturally be promoting a scheme that would be in the interests of the reader, that would be pleasing to the writer of the editorial himself as well.

2898 It has been testified that the writer of the editorial was probably Senator Thomas Benton.

The following excerpt from "Niles Register," a political, historical, geographical, etc., publication, edited by Jeremiah Hughes, from March, 1847, to September, 1847—Vol. XXII,

Fifth Series; Baltimore; Printed by the Editor, indicates Benton's attitude toward this project.

(Witness reading) on page 309, letter of Col. Benton, headed "St. Louis, June 20, 1847":

"To Messrs. Wayman and others—

Gentlemen—In my brief note addressed to you on my return from Jefferson, I expressed the gratification I should have felt in going with the St. Louis delegation to the Chicago convention, and made known the reason which would prevent me from having that pleasure.

The lake and river navigation of the great west, to promote which the convention is called, very early had a share of my attention, and I never had a doubt of the constitutionality or expediency of bringing that navigation within the circle of internal improvement by the federal government, when the object to be improved should be one of general and national importance.

The junction of the two great systems of waters, which occupy so much of our country—the northern lakes on the one hand, and the Mississippi river and its branches on the other—appeared to me to be an object of that character, and Chicago the proper point for effecting the union; and nearly thirty years ago I wrote and published articles in a St. Louis newspaper in favor of that object, indicated, and almost accomplished by nature herself, and waiting from man but little to complete it: Articles in the St. Louis Enquirer, of April, 1819; express the opinions which I then entertained, and the 'report' of that period, published in the same paper, to the secretary of war, by Messrs. Graham and Phillips, in favor of that canal, (and which report I wrote,) was probably the first formal communication upon authentic data, in favor of the Chicago canal. These gentlemen, with Mr. John C. Sullivan, of Missouri, had been appointed by the secretary of war, to run a line from the south end of Lake Michigan to the Mississippi. I proposed to them to examine the ground between Chicago and the headwaters of the Illinois river, with a view to the construction of a canal by the federal government. They did so, and on their return to St. Louis, submitted all their observations to me; and hence the publications in the newspapers, and the report of the secretary of war. I mention this to show that my opinions on this subject are of long standing; and that the nation-

ality of the Chicago canal, and of course, of the harbor at its mouth, are by no means new conceptions with me. But I must confess that I did not observe then what I have since seen—the falls of Niagara surmounted by a ship canal; and a schooner clearing from Chicago for Liverpool.

2901 The river navigation of the great west is the most wonderful on the globe; and since the application of steam power to the propulsion of vessels, possesses the essential qualities of open navigation. Speed, distance, cheapness, magnitude of cargoes, are all there, and without the perils of the sea from storms and enemies. The steamboat is the ship of the river and finds in the Mississippi and its tributaries the amplest theatre for the diffusion of its use, and the display of its power. Wonderful river, connected with seas by the head and by the mouth, stretching its arms towards the Atlantic and the Pacific, lying in a valley, which is a valley from the Gulf of Mexico to Hudson's Bay, drawing its first waters not from rugged mountains, but from the plateau of the lakes in the center of the continent, and in communication with the sources of the St. Lawrence and the streams which take their course north to Hudson's Bay, draining the largest extent of the richest land, collecting the products of every clime, even the frigid, to bear the whole to a genial market in the sunny south, and there to meet the products of the entire world. Such is the Mississippi! And who can calculate the aggregate of its advantages, and the magnitude of its future commercial results.

2902 Many years ago, the late Governor Clark and myself undertook to calculate the extent of the boatable water in the valley of the Mississippi; we made it about 50,000 miles of which 30,000 were computed to unite above St. Louis, and 20,000 below. Of course, we counted all the infant streams on which a flat, a keel, or a batteau could be floated, and justly, for every tributary of the humblest boatable character, helps to swell not only the volume of the central waters, but of the commerce upon Of this immense extent of river navigation, all combined into one system of waters, St. Louis is the centre; and the extrepot of its trade, presenting even now, in its infancy, an astonishing and almost incredible amount of commerce, destined to increase forever. It

is considered an inland town. Counting by time and money, the true commercial measure of distances, and St. Louis is nearer to the sea than New Orleans was before the steam towboat abridged the distance between that city and the mouth of the Mississippi. St. Louis is a seaport as well as an inland city, and is a port of delivery by law, and has collected $50,000 of duties on foreign imports during the current year, and with a liberal custom would become a great entrepot of foreign as well as of domestic commerce. With the attributes and characteristics of a seaport, she is entitled to the benefit of one, as fully and as clearly as New York or New Orleans.

About twenty years ago, I moved in the senate, and obtained an appropriation for a survey of the rapids of
2903 the upper Mississippi; it was probably the first appropriation ever obtained for the improvement of the upper part of the river. About twenty-five years ago, I moved, and succeeded in the motion, to include the Missouri river in a bill for the improvements of western rivers—it was the first time that river had been so included. Thus, on the important items of the Chicago canal, the rapids of the upper Mississippi and the Missouri river, I was among the first to propose to include them within the circle of internal improvement by the federal government. I have always been a friend of that system, but not to its abuse! and here lies the difficulty, and the danger, and the stumbling block to its success. Objects of general and national importance can alone claim the attention of the federal government; and in favor of such objects, I believe all the departments of the government to be united. Confined to them, and the constitution can reach them, and the treasury sustain them. Extended to local or sectional objects, and neither the constitution nor the treasury could uphold them.

National objects of improvement are few in number, definite in character, and manageable by the treasury; local and sectional objects are innumerable, and indefinite and ruinous to the treasury. Near twenty years ago, the treasury was threatened with a demand for
2904 two hundred millions of dollars for objects of internal improvement, then applied for, and many of them of no national importance. The enormity of the sum baulked the system; and so it must be again, if the proper dis-

crimination is not kept up between local and national subjects. It is for congress to make that discrimination; the president can not; he must reject or approve the bill as a whole. Here, then, is the point at which the friends of the system, in congress must exert all their care and vigilance. No arbitrary rule can be given for the admission or exclusion of proper objects, but really national objects admit of no dispute; and confined to them, I apprehend but little danger of losing a bill, either from executive vetoes, or for want of votes in congress.

Very respectfully, gentlemen, your friend and fellow citizen,

THOMAS H. BENTON."

Q. What conclusions do you draw from that editorial as to the weight to be given to it as evidence of the condition of the Desplaines river as to navigability or as to the trade existing thereon?

Objection; the same as preceding.

2905 A. I read and examined the editorial to find out whether its statements were conservative. There are enthusiastic statements, such as "Nay, thousands of boats have been seen at St. Louis which had made a similar passage," referring there to the passage down from Chicago through the Desplaines and Illinois rivers, as I understood him.

Among the citations to prove that there was no population in Illinois to demand such a commerce, I cite Schoolcraft's Travels, pages 306 and 316; Galena Advertiser of October 5, 1829, where it said there was no population in northern Illinois to speak of; and in the transactions of the Illinois State Historical Society, number 13, page 141.

2906 Thomas Ford, in his history of Illinois, pages 38 and 102, gave still further evidence on this point, and there is more in the Chicago Magazine, Vol. 1, page 38. In Flint's History of the Mississippi Valley, page 324, there is a statement that the first settlement even down as low as Green County, was in 1817.

Q. Professor McLaughlin has testified that in his judgment there was a considerable traffic between Chicago and St. Louis at that time. Based upon these authorities which you have referred to, what would you say as to the correctness of that deduction?

Objection, same as preceding.

A. There would be no population in Illinois that would demand such a commerce, and there are other authorities I have already cited, proving there was no population in Chicago at that time which would demand it.

2907 Hamilton's Hubbard, heretofore referred to on page 34 shows Chicago was a very small place in 1818. It says (reading page 36):

"On the east side of the fort the river was from four to five hundred feet from the pickets, and a part of this distance was a low, sandy beach where rude wash houses had been constructed, in which the men and women of the garrison conducted their laundry operations.

Just east of the road and adjoining the fence running east to the river, was the Factor House, a two-story squared log structure, enclosed by a neat split-picket fence. This building was occupied from 1804 to about the year 1810 by a Mr. Jonett, United States Factor, and by the west side of the road, adjoining the Government garden, in a picket fence enclosure, was the grave of his wife. At the second construction of the fort he

2908 was succeeded by John Dean.

For a distance of a quarter of a mile from the Factor House there was no fence, building or other obstruction between the Government field fence and the river or lake. Another house of hewn logs stood 1200 or more feet from the road, and back of it flowed the Chicago River, which as late as 1827, emptied into Lake Michigan at a point known as The Pines, a clump of a hundred or more stunted pine trees on the sand hills about a mile from the fort. On the edge of the river, directly east of this house, and distant about four hundred feet, stood a store house of round logs owned by the American Fur Company, and occupied by its agent, Mr. John Craft, who erected it. This house was surrounded by a rail fence, and after the death of Mr. Craft was occupied by Jean Baptiste Beaubien.

Adjoining this store house on the south was the fort burying ground. The east line of the Government field extending to about this point, and thence west to the south branch of the river. These, with the addition of a log cabin near the present Bridgeport, called Hardscrabble, a cabin on the north side occupied by Antoine

Ouilmette, and the house of Mr. Kinzie, comprised all the buildings within the present limits of Cook County."

2909 My next reference on the subject of population at Chicago at the time this editorial was published, is Wisconsin Historical Collections, Vol. 4, page 162, which has been read into the record at transcript pages 2869-2871 (Abst., 1166-1167).

My next reference is Chicago Magazine, Vol. 1, 1857, Biography of Early Settlers, page 38.

2910 (Reading.) Page 38, Biography of William H. Brown:

"Mr. Brown removed with his family to Chicago in October, 1835, having been appointed cashier of a branch of the State Bank of Illinois, which had been created here in the winter of 1834. This position he had accepted with some reluctance, under the impression that his previous pursuits had not been of a kind to give him that knowledge of financial matters required in the charge of such an institution."

I omit then a few lines (reading):

"At the time of Mr. Brown's arrival in the State, its population was not over 40,000; and none or next to none of them lived north of the present limits of Bond County. When he came to this city, it was a village of about two years growth, and contained about 2,000 people. All Northern Illinois was a wilderness, and two years later the whole north half of the state was included in one congressional district; and sent Hon. J. T. Stewart, of Springfield, to Congress; electing him over his competitor Stephen A. Douglas, who on that occasion made his first appearance on the stage in pursuit of political honors."

2911 Also, in this connection, I now refer to Wisconsin Historical Collections, Vol. 4, 1857-58, Child's Recollections, on page 163 (reading):

"That night I arrived at Chicago, pitched my tent on the bank of the lake, and went to the Fort for provisions. I was not, however, able to obtain any; the commissary informing me that the public stores were so reduced, that the garrison was subsisting on half rations, and he knew not when they would get any more. I went to Col. Beaubien, who furnished me with a small supply. I found two traders there from Mackinaw; and as my men were all sick, I exchanged my tent and canoe for a horse, and took passage on board the Mack-

inaw boat as far as Manitowoc. One of our party had to go by land and ride the horse. There were at this time but two families residing outside of the Fort at Chicago, those of Mr. Kinzie and Col. Beaubien."

2912 I have other references upon the point that there was no Chicago to demand such a commerce as was indicated by the Enquirer.

Q. What are they?

Objection; that there was nothing in the editorial as to Chicago.

COUNSEL FOR DEFENDANT. If there was not, we will omit it all. We have shown that it was not northern Illinois commerce because there were no people there; we have shown it was not Chicago, and now we shall show it was not lake commerce.

COUNSEL FOR COMPLAINANT. Prescott says Canada.

COUNSEL FOR DEFENDANT. Now, Mr. Wilkerson, let us get you straightened out. There is once when you put yourself on record. You point out there those thousand boats that came to St. Louis.

COUNSEL FOR COMPLAINANT. I am not on the witness stand, but I will read the sentence that I had in mind:

"The French of Canada and of the valley of the Mississippi have moved through this channel since the settlement of the country."

COUNSEL FOR DEFENDANT. Yes, but I was talking about these thousand boats.

2913 COUNSEL FOR COMPLAINANT. You had one thing in mind and I had another.

COUNSEL FOR DEFENDANT. I had but one thing in mind and that is this statement as to these thousand boats, and in connection with them there is nothing said about Canada.

COUNSEL FOR COMPLAINANT. My objection to the question stands. It is incompetent, immaterial and irrelevant, for the reason that it is a hypothetical question, which assumes something that is not sustained by the record.

COUNSEL FOR DEFENDANT. Of course, it also stands that the commerce referred to by him is Canada commerce, because that is in the record.

The WITNESS (continuing): I hold a book entitled "Autograph Letters, 1882, Volume 29, Chicago Historical Society," wherein I find a letter signed by J. Watson Webb, sent to Hon. John Wentworth, dated October 25, 1882. I get this

from the Chicago Historical Society. I do not recall just now who James Watson Webb was. He says:

2914 "When I sat down to write to you I intended to give you a full sketch of our wilderness at Chicago in 1821, 1822. * * * As my residence at Chicago was long before its settlement, it was emphatically a wilderness. Our nearest white inhabitant was at Fort Wayne, where once in every two weeks the adjutant sent a sergeant and private for our mail and for that destined for Green Bay, which a sergeant and private from the headquarters of the regiment are always ready to receive and
2915 carry forward."

Page 114:

"The residents of Chicago at the time of which I write other than the employes of the Government, were John B. Beaubien and his Indian family, and John Crafts, agent of the American Fur Company, whose headquarters were at Mackinaw, under the charge of Ramsay Crooks."

My next reference as to whether there was a Chicago to demand such a commerce in 1816, when this editorial was written, is the National Register, Volume 3, January to June, 1817. This volume was procured from the Library of Congress at Washington.

2916 The title page reads: "The National Register, a weekly paper containing a series of important public documents, and proceedings of Congress; statistical tables, reports, and essays, etc."; making two volumes; yearly; by Joel K. Mead; vol. III; vol. I for 1818; Washington City; Printed and Published by the Proprietor. 1817." Historians refer to this work as a reliable source. (Reading p. 196):

"At Chicago, situated on the southwest part of Lake Michigan, is Fort Dearborn, destroyed by the Indians in August, 1812; and rebuilt in part by the troops now stationed there under the command of Capt. Bradley. Two companies of soldiers arrived at this place on the 4th of July last, and, under the direction of Capt. Bradley, commenced the erection of a pallisade work and quarters large enough for their reception. The works are in a state of forwardness that does much credit to their industry, and will probably be completed in the course of the next season."

2917 That indicates where the soldiers returned to Fort Dearborn after the massacre. It says July 4th last, re-

ferring to the year 1816, which was the same summer that Messrs. Graham & Phillips set out to make the survey referred to in the St. Louis Enquirer. The garrison at Chicago was destroyed in 1812 and at the time mentioned in this article, troops returned to rebuild the fort.

My next reference is "Schoolcraft's Journal, 1821," which has the statement that has been read into the record, which states that Chicago was a village of ten or twelve houses, and a population of sixty souls.

2919 Concerning the amount and nature of commerce existing on the lakes up to 1840, not referring to the operations of hunters and fishermen, I have the following references: Ford's History of Illinois, which has heretofore been identified by me and quoted on the record; referring to the period when Illinois was admitted into the Union, about 1818, it says (reading, p. 23):

"It therefore became the duty of the national government, not only to make Illinois strong, but to raise an
2920 interest inclining and binding her to the eastern and northern portions of the Union. This could be done only through an interest in the lakes. At that time the commerce on the lakes was small, but its increase was confidently expected, and indeed it has exceeded all anticipations, and is yet only in its infancy."

Wisconsin Historical Collections, Vol. 4, 1857, 1858, which I used before (reading on page 195):

"From 1820 to 1835, all boats and vessels that came up the lakes, came to Green Bay; there was no other place to go, except there would occasionally be one or two schooners that would go to Chicago with supplies for the troops. Soon after the arrival of the first steamboat at Green Bay—in 1821—the first school house was built at the place, and about the same time the first missionary school was opened."

This is from Child's Recollections, and Child was in a position to know what the commerce at Green Bay and Chicago was at that time.

Motion to strike out as not responsive, and as in-
2921 formation volunteered by the witness. To which counsel for defendant replied that complainant's witnesses as well as this witness had previously qualified Childs on this point.

The WITNESS (continuing): My next authority on the

amount of commerce at Chicago is "Wentworth's Early
2922 Chicago," page 4, which was read in by me yesterday (Trans., 2737; Abst., 1117), and referred to the first steamboat at Chicago in 1832.

The next is Hunt's Merchants Magazine, Vol. 26, page 426, which referred to the first beef shipped to Chicago in 1837, as heretofore read into the record by me (Trans., 2738; Abst., 1118). It also mentions the first wheat coming to Chicago in 1839.

The Chicago Magazine, Vol. 1, page 53, a reference heretofore read into the record (Trans., 2742; Abst., 1120) mentions the first shipment of wheat as in 1838.

2923 There is a reference in the Transactions of the Illinois Historical Society, written by Ethelbert Stewart, which I have read into the record (Trans., 2733-35; Abst., 1116-1117), wherein he points out the commerce of the American Fur Company between 1812 and 1818.

Objected to as the extracts speak for themselves.

2924 Transactions of the Illinois Historical Society, Vol. 8, page 118, has a further reference to the same subject. (Reading):

> "The payrolls of the American Fur Company for 1818 are obtainable and show that the company are just beginning to operate in Illinois."

That reference is in the record at Trans., 2733. (Abst., 1116.)

Another reference to the condition of commerce on the lakes is Hamilton's Hubbard, page 124.

2925. That has been read into the record (Trans., 958; Abst., 401), the portion reading:

> "A portion of our furs were shipped from Chicago, for the first time, in a small schooner which had brought supplies for the garrison."

That refers to the year 1823.

Major Long's report referred to on page 252 of the transcript, points out that a very small canal can be made. (Reading, from page 251, transcript):

> "A canal uniting the waters of the Illinois, with those of Lake Michigan, may be considered the first in importance of any in this quarter of the country, and, at the same time, the construction of it would be attended with very little expense, compared with the magnitude of the object. The water course, which is already opened between the river Desplaines and Chicago river, needs

but little more excavation to render it sufficiently capacious for all the purposes of a canal."

2926 On page 252 he says:

"To render the Des Plaines and Illinois navigable for small boats and flats requiring but a small draft of water, nothing more is necessary than the construction of sluices.

In a few places where there are ripples of a sufficient width to admit the boats to pass through them.

This may be effected by clearing away the loose stones from the bottom, and forming banks riveted with stone two or three feet high, on each side of the sluice. Thus, a water communication between the Illinois and Lake Michigan may be kept open at all times sufficient to answer all the purposes for which a canal will be wanted, for many years to come."

Q. What inference do you draw from the fact that what he indicates here is a slight improvement, which would answer all purposes for which a canal would be required for many years to come as bearing upon the trade and commerce then existing upon the lakes?

2927 Objection, irrelevant, incompetent and immaterial; witness not qualified to draw conclusion.

A. After he has pointed out that all that was required to make it navigable for small boats, or those requiring but a small draft of water, he points out that with that improvement it would answer all purposes of commerce for years to come, which would indicate that all the commerce that would be needed to be carried on in such a channel would be very slight.

In the same work, Vol. 1, page 164, there is a reference I have read into the record, which says:

"As a place of business, it offers no inducement to the settler; for the whole annual amount of the trade on the lake did not exceed the cargo of five or six schooners even at the time when the garrison received its supplies from Mackinaw."

Q. Does that also bear upon the phase of the question we are now considering?

Objection, same as preceding.

2928 A. That would indicate that there was very little commerce upon the lake.

A reference bearing on the question of the commerce there

was on the upper Illinois in 1818 or about that time, is Ford's History of Illinois, page 42. (Reading):

"Such a thing as regular commerce was nearly unknown. Until 1817, everything of foreign growth or manufacture had been brought from New Orleans in keel boats, towed with ropes or pushed with poles, by the hardy race of boatmen of that day, up the current of the Mississippi; or else wagoned across the mountains from Philadelphia to Pittsburgh, and from thence floated down the Ohio to its mouth in keel boats; and from there sheered, pushed, and towed up the Mississippi, as from New Orleans."

2929 I now read from page 96:

"Commerce from 1818 to 1830, made but a small progress. Steamboats commenced running the western waters in 1816, and by the year 1830, there were one or two small ones running on the Illinois river as far up as Peoria, and sometimes further. The old keel-boat navigation had been disused; but as yet there was so little trade as not to call for many steamboats to supply their place."

Another reference to the commerce at that time in that locality is Gerhard, Illinois As It Is, 1855, heretofore read into the record by me. The passage is (reading):

"Most of the exports were shipped to New Orleans, at that time a place of inconsiderable importance. Since
2930 there were no merchants or express companies to forward the goods to market, the Illinoisan farmer would build his own boats, load them with his goods, and, with the assistance of a few men, sail down the river to New Orleans."

Other reasons for questioning the accuracy of the editorial which refers to "hundreds—nay thousands of boats" is that it says:

"The canal might be dug in the time that a long winded member of Congress might make a speech against its constitutionality."

2931 A. I have pointed out in the study of this article that the writer and the reader of the editorial were enthusiastic, and that there is a general inaccuracy of statement as pointed out by the statement of "nay thousands of boats came down the Illinois river," which was wrong since there was no population in Illinois at the time to demand such

a commerce; secondly, since there was no Chicago to demand such a commerce; and third, there was very little commerce on the lakes which came to Chicago at that time. And then as a second reason I have pointed out this generally inaccuracy of statement, and I say even though the editorial were to be accepted at face value, it would add very little to the proof of the navigability. It said:

"In dry seasons, boats are unloaded, placed on vehicles and drawn by oxen over a portage of a few miles, and launched into the river or lake, as the course of the voyage may require."

Motion to strike out "it would add very little to the proof of the navigability."

2932 The length of the portage which the writer of the editorial must have had in mind when he spoke of a portage of a few miles made on vehicles drawn by oxen, was evidently a portage of some length, 50 miles long.

Graham & Phillips' report would throw some light on the length of the portage existing at that time. It says:

"The Plein during half of the year, does not contain water enough to float a boat."

I have examined the translation of Charlevoix, 1761, used by Mr. Alvord as shown by transcript, page 138, and compared the same with the 1763 translation, and noted that they differ in certain respects.

2933 In the third paragraph of the translation of 1763, the letter says:

"But as the river is but a brook in this place I was informed that at that time of the year I should not find water enough for my canoe."

The context there refers to the Desplaines river.

I find that in this excerpt just referred to, the phrase "as this river was but a brook in this place" was not included in the 1761 translation. That is, in the translation read by Mr. Alvord and testified to by him as being accurate and correct, I find that the words "But as this river is but a brook in this place" were omitted as they appear in the 1763 translation, although their equivalent is to be found in the original French.

2934 The 1763 translation would be the correct one. I got the copy of Charlevoix of 1761 from the City Library, which is the same one that Professor Alvord used.

2935 The Chicago Public Library index card led me to this

citation, and contains a statement bearing upon the question of the value of the translation of 1761.

2936 Q. Will you read into the record what that card or catalogue says with reference to that translation?

Objection, no proper foundation laid for the introduction of the card.

A. This is a card which is gotten out by the Library of Congress. They make an extensive catalogue of books and any library can get the cards to put into their catalogue.

2937 Many libraries simply use the Library of Congress' cards. Sometimes they contain a quotation from the review as to the character and standing of the book to which the card specifically refers.

Q. You may read that card in evidence.

Objected to as the unsworn statement of an unknown employee of the library.

2938 The WITNESS (reading the card):

"As to the translation, it betrays, by numerous Scotticisms and misinterpretations the hand of a North Briton, too little acquainted with the French and English languages to read or write either with propriety."

The citation from which that quotation is taken is the "Monthly Review," 1760, Vol. 2, page 430.

2939 I have that volume of the Review here, and the same comment appears on the page cited on the card.

I have compared the translations with the abstract of the record in the State case, and the translation of this same passage appears therein.

Objection, secondary evidence.

Q. Is it the correct translation of 1763, or is it the incorrect translation of 1761?

Objection to the characterization of one as correct and the other as incorrect.

2940 Mr. Scott. I do not think that Mr. Alvord, who sits there looking at the French, will deny that it is incorrect, and I will show him the French.

(Document handed to Mr. Alvord.)

Having shown you the French, Mr. Alvord—this is by consent of the Government counsel—or what purports to be the French text, is the translation of 1763, in which it speaks of the mere brook, correct?

Mr. ALVORD. The translation is correct.

Mr. SCOTT. The translation of 1761 then would be incorrect, would it not?

Mr. ALVORD. It omits that passage.

Q. With the abstract before you, Mr. Lee, which translation appears in the State case?

Objection; incompetent, irrelevant and immaterial.

2941 A. On page 972, of the abstract of *People* v. *Economy Light & Power Co.*, the State case, I find the following:

"I now produce a volume entitled 'Charlevoix's letters to the Duchess Desdiguieres' published in 1763."

And then occurs the letter, in which I find the following:

"But as this river is but a brook in this place, I was informed that at that time of the year I should not find water enough for my canoe."

Q. What conclusion have you drawn from a study of the passage in Charlevoix as it appears in the original and in the translation of 1763, so far as concerns any deduction that may be drawn from it as to the navigability or non-navigability of the Desplaines river?

Objection, incompetent, irrelevant and immaterial.

A. Charlevoix believed he had two possible routes by which he could gain the country of the Illinois; he rejected the one and consciously took the other, because of a storm on the lake, and because there was not water enough in the river to float his canoe. The latter is the very best evidence as to the non-navigability of the Desplaines river at that

2942 time; he was using a very light canoe.

2943 There has been read into the evidence a footnote to Schoolcraft's Travels an extract from an account by Thomas Tousey of Virginia, of a visit to the Desplaines, wherein he mentions a certain petrified tree and states that detached pieces were covered with from 12 to 20 inches of water.

2944 Q. Is there anything in that narrative that indicates whether or not the water was in a normal or unusually high condition at that time?

Objection, same as heretofore made.

A. There is. (Reading from beginning of Chapter 19, page 179):

"1823, June 10th. Mr. Thomas Tousey, of Virginia, writes from Philadelphia, after completing a tour of the West: 'The reading of books and looking at maps make a fugitive impression on the mind, compared to the ocular view and examination of a country, which make it seem as though we cannot obtain valuable information, or money to serve a valuable purpose, without great per-

sonal labor, fatigue and often danger. This was much verified to my satisfaction, from a view of the great western lakes; the interesting position where you are—Mackinaw, Green Bay, the fine country between Green
2945 Bay and Chicago, and Chicago itself, and the whole country between the latter place and St. Louis.

Without seeing that country, supposed by many to be the region of cold and sterility, I could not have believed there was in it such a store of blessings yet to be drawn forth by the labor and enterprise of man, for succeeding generations. As yet, there are too many objects to tempt and attract the avarice of man to more mild, but more dangerous climates. But the progress of population and improvement is certain in many parts of the country, and with them will be connected prosperity and happiness.

When it is considered what a small population of civilized beings inhabit that part of the world, it is not to be wondered at that so little knowledge about it exists. I went from Green Bay, with the Express, where but few people ever travel, which was attended with fatigue and danger; but the journey produced this conviction on my mind, that the Michigan territory has in it a great extent of fine country.

I regard Green Bay, at the mouth of Fox River, and Chicago, as two very important positions, particularly the latter. For many years I have felt a most anxious desire to see the country between Chicago and the Illinois (river), where it has generally been, ignorantly, supposed that only a small sum would be wanting to
2946 open a communication between them. By traveling on horseback through the country, and down the Illinois, I have conceived a different and more exalted opinion of this communication, and of the country, than I had before, while I am convinced that it will be attended with a much greater expense to open it than I had supposed. I, with my two companions, found your fossil tree, in the Desplaines, with considerable labor and difficulty. This I anticipated, from the commonly reputed opinion of the uncommon height of the waters. With your memoir in my hand, we rode up and down the waters till the pursuit was abandoned by the others, while my own curiosity and zeal did not yield till it was discovered. The detached pieces were covered with twelve

to twenty inches of water, and each of us broke from them as much as we could well bring away. I showed them to Col. Benton, the Senator in St. Louis; to Major O'Fallon; Col. Strother, and other gentlemen there; to Mr. Birkbeck in Wanboro; to Mr. Rapp in Harmony; and to a number of different people, through the counties I traveled, till my arrival in Virginia."

2946 Q. In addition to the light that that throws upon the height of the water at that time, what deductions do you draw as to the feasibility of opening a communication between the Illinois and the lakes?

2947 Objection, same as heretofore.

A. In a reference he says: "For many years he had felt a most anxious desire to see the country between Chicago and the Illinois river, where it has generally been, ignorantly, supposed that only a small sum would be wanting to open a communication between them," but he says after traveling over the region himself he formed a very different opinion.

Tousey actually passed over the route in question, when the water was uncommonly high, and the portage consequently shorter than in ordinary times; yet, in spite of this, he is forced to conclude it would be a much larger task to open a communication between the Illinois and the lakes than "general opinion ignorantly supposed." This ignorance, he points out, is due to the fact that the people have drawn conclusions from the study of books and looking at maps instead of viewing the country.

Excerpts have been read into the record on behalf of the complainant from "Schoolcraft's Travels in the Central Portion of the Mississippi Valley," from which certain deductions have been drawn.

2948 There are other portions in the works of Schoolcraft, which throw light upon the condition of the river and the feasibility of connecting the lakes and the Illinois river through that territory.

Schoolcraft on the trip up the river which he recites in his "Travels in Central Portion of the Mississippi Valley," came up by canoe as far as he could and then went by horseback. The excerpt which I shall read will point out at what point he left the canoe (reading, p. 318):

2949 "At two o'clock we reached the mouth of the Vermilion (this refers of course to his trip up the Illinois river, a fine clear stream, entering on the left bank.

This point is estimated to be equi-distant between Chicago and Fort Clark, it being ninety miles either way. The rapids commence half a mile above, which makes it evident, that the Illinois is greatly diminished in size above the junction of the Vermilion. The water at once becomes shallow, and the rock, which is sandstone, presents itself first in broken masses, and soon after flooring the bed of the river. When our canoe would no longer float without rubbing against the rocks, we got out and made a short portage, the empty canoe being still guided along by men walking in the stream on each side. When we again embarked, we could, however, go but a short distance. Another portage was necessary. In short, we could no longer proceed in our water craft. Nothing but a series of rapids appeared above as far as we could explore. The water was scarcely eight or ten inches deep in any place, and often less than four. With great exertions, we had proceeded two or three miles above the Vermilion, and about 4 o'clock, we encamped near a remarkable isolated hill, called by French voyageurs Le Rocher, and Rock Fort."

2950 Another reference throwing light upon his experience with this route is on page 321 (reading):

"Finding the navigation so difficult, we determined to relinquish the design of proceeding any further by water, and to await the arrival of horses from Chicago, which had been ordered to meet us near this place on the 10th. A man was sent by land to Reddick's Deposite. He returned at a seasonable hour on the following day, having found the horses in waiting. Having made the necessary arrangements for conveying our baggage by land, and leaving our canoemen in charge, we mounted our horses at ten o'clock in the morning, and pursued the journey with renovated spirits."

P. 332:

"14th. About ten o'clock in the morning, we reached the ford of the Desplaines. We found the river about thirty yards wide, and the depth of water two feet. Between this place and the Vermilion, where we left the Illinois, we have seen the river but seldom, although our route has been for the greater part upon its banks. We have, however, seen its channel, at a sufficient number of points, to determine that it has several long and formidable rapids, which completely intercept the navi-

gation at this sultry season:—a remark that has been confirmed by meeting several traders on the plains, who had transported their goods and boats in carts from Chicago creek, and who informed us, that they thought it practicable to enter the Illinois at Mount Joliet. This would lengthen the portage to about thirty miles, but it has been perceived that we ourselves began it far below this last mentioned point. This fact is sufficient to show the error of those who have supposed that a canal of only eight or ten miles would be necessary to perfect the navigation between Lake Michigan and the Illinois. A canal of this length would indeed perfect the communication, which already exists at certain seasons, between Chicago creek and the Des-
2951 plaines, but must fall far short of the grand purpose.

But although our journey has produced a conviction, that the difficulty and expense which will attend this work are greatly underrated; it has also impressed us with a more exalted opinion of this projected communication, and the ability of the country through which it must pass, eventually to complete and maintain it. If
2952 the present scanty population and feeble means of this part of Illinois, has convinced us that the commencement and completion of this important work, are more remote than we before supposed, its final execution is not the less certain, and we regard the plan as one entitled to every rational and proper aid. There are few portions of the western country, where the progress of settlement is more certain, or which will admit of a more dense population; and the first efforts of such a community if enlightened and enterprising, will be to place themselves on an equality with other states, by opening the way to a northern market."

Q. In the complainant's testimony there was a general reference by Schoolcraft to the interlocking of rivers and portages with the lake. I ask you to state in determining his meaning, what weight is to be placed upon his detailed description of his journey from the Illinois to Lake Michigan with reference to the navigability of the Desplaines river? What conclusion do you draw therefrom?

Objection, same as heretofore.

A. It would be the very best authority, because he is narrating his own experience in going over the region.

2953 His experience was that he had to make a long portage, stating that he left the river two or three miles above the Vermilion, there finding navigation difficult; they relinquished the design of proceeding further and went from there on horseback. He not only had to make a long portage himself, but on the way he met traders on the plain who had transported their goods in boats and carts from Chicago creek. They thought that they could make the portage with thirty miles, but he observed that at that time and in that journey he had to make a much longer portage.

Schoolcraft's experience leads to the conclusion that the Desplaines was not navigable. You could hardly get a better authority on that point.

2954 He states that a canal which connects the lake with the Illinois must be much longer than is usually supposed.

2954 The passage from Imlay, read by Alvord, transcript 208 (Abst., 89), which reads:

"I have mentioned that it is about 230 from the mouth of the Ohio up the Mississippi to the mouth of the Missouri, and about 20 from thence to the Illinois which is navigable of batteaux to its source. From thence there is a portage of only two miles to Chicago, which is also navigable for batteaux to its entrance into Lake Michigan, which is a distance of 16 miles. This lake affords communication with the St. Lawrence through Lake Erie, passing Niagara by a portage of 8 miles."

—has been examined by me to ascertain the source of information as to the matter contained therein with reference to the portage at Chicago.

Q. What do you find as to that?

Objection, same as preceding.

2955 A. I now read from Imlay, 1797 Edition, heretofore referred to. (Reading p. 45):

"I must now beg you will travel with Hutchins from hence to Detroit. He will conduct you up the head branches of this river, and, after a short portage, you will embark again on the waters of Lake Michigan, discovering how the operations of this great country will be facilitated by the peculiar courses of its immense and numerous rivers. His observations I have been told are considerably accurate, and, as I have not had the advantage of traveling this route, I recommend you to read

his book, which was originally published in England, and no doubt is still to be had."

This statement of Imlay's as to the Chicago portage would add nothing to the weight of the citation from Hutchins on that point. It points out that Imlay had not gone through the region himself, but that he referred to Hutchins.

2956 And it would be the same as in the case of Morse. The statement would also depend on what basis Hutchins had for his statements.

2957 Have examined complainant's (Alvord's) testimony as to Gurdon S. Hubbard, transcript pages 264 to 269 (Abst., 119-122).

Hubbard first came to Chicago in 1818, as shown in Hamilton's Hubbard, on page 31. He remained there a few days (Page 39); and went by the South Branch through Mud Lake and down the Desplaines in three days (Page 40). He unloaded to pass the shoal to Isle La Cache, (Page 41).

2958 Pointed out that progress was slow from there (Page 43); they carried their goods most of the way on their backs down to the Illinois and were compelled to place lightened boats on poles; took three weeks to reach mouth of Fox river. Started March 22, 1819 (page 59). He had thirteen heavily loaded boats of the River Brigade. The river was high and progress slow; he raised the sail; passed up the Desplaines and across to Chicago regardless of course of channel (page 60).

2959 Hamilton's Hubbard, page 59 (reading):

"The first night we halted at our old campground at the foot of Starved Rock. From this point until we reached Cache Island, our progress was very slow, averaging but from six to ten miles per day. The river was high, the current swift, and the rapids strong, and as the boats were heavily laden, and a cold storm prevailed, we were glad to camp early and afford the men a much-needed rest. Early the morning following we left Cache Island, and as the wind was strong from the southwest, we hoisted our square sails, for the first time, and rapidly passed up the Desplaines river, through Mud Lake, to South Branch, regardless of the course of the channel, and soon reached Chicago."

His next trip after 1819 was in 1821, with 12 boats. The water was low; in places he could cross without wetting

2960 the soles of his feet. And they made the portage by carrying the goods on their backs to the Desplaines, en-

countering the usual fatigues (pages 104 and 105). Reference to return trip (page 116) gives no details of his experience.

No conclusions can be drawn as to the difficulties he encountered, or as to over what, if any, portions of the route he had to portage the goods, for he makes no statement with regard to his experience on that particular point.

The next trip was in the fall of 1822; it was a down trip; he encountered usual trials and hardships between Chicago and Starved Rock (page 121).

2961 As to whether he gives any further details, all he says is that in due season he arrived at Bureau Post, where he passed his first winter. In 1823 and 1824 he made a down trip (page 130). The return trip was made in the spring of 1823. He points out (reading):

"The season had been an unusually good one, and we had accumulated more furs and peltries than our boats could carry up the Desplaines river, and I was accordingly dispatched with four boatloads to Chicago; these I stored with Mr. John Crafts, and returned to the 'brigade,' when we all moved forward on our annual return to Mackinaw."

The next was a down trip in the spring of 1824.

2962 This trip was made by the St. Joe-Kankakee to Iroquois.

These are all the trips that he describes on the river that I have been able to find.

In connection with the Fur Company's business, the only down trips he made on the Desplaines were, one in 1819, one in 1821 and one in 1822. He made three trips up the Desplaines. As to his down trips, being asked if he gives any details of the difficulties met or the extent to which it was necessary to carry the goods, except in his account of his first trip, will say that he gives details of only the first trip.

There was a change of manner of carrying on the business of the American Fur Company (reading), pages 136-37:

"Mr. Deschamps, having become old and worn by long continued service and the hardships to which he had been exposed, resigned his position as Superintendent of the Illinois River Trading Posts of the American Fur Company, and on his recommendation I was appointed to succeed him. I now determined to carry out a project which I had long urged upon Mr. Deschamps, but without success—that of unloading the boats upon their ar-

rival at Chicago from Mackinaw, and scuttling them in the slough, to prevent their loss by prairie fires, until they were needed to reload with furs for the return voyage.

The goods and furs I proposed to transport to and from the Indian hunting grounds on pack horses. In this manner the long, tedious and difficult passage through Mud Lake, into and down the Desplaines river, would be avoided, and the goods taken directly to the Indians at their hunting grounds, instead of having to be carried in packs on the backs of the men."

2963 Q. There is opinion evidence in the complainant's case, that these extracts from Hubbard show that the Desplaines was an ordinary, well known passage, had been used and was in use at that time, and that the change of policy was to reach regions more directly to the south of Chicago. What are your conclusions from those passages?

Objection, incompetent, irrelevant, etc.

2964 A. Hubbard gives a detailed account of only one of the three down trips he made. It took three weeks to make the trip; his men carried the goods most of the way on their backs, while the boats were placed on poles. The second trip he says the water was unusually low; in places the creek was dry. If the water was unusually low "The usual fatigues" must have been even worse than the year before. Nothing in the third account indicates more favorable conditions, as he encountered the usual trials and hardships.

Of the return trips, he gives the details of but one. In the first the water was so high he sailed up the Desplaines and across to Chicago, regardless of the channel. No account is given of the second trip. On the third trip, the Desplaines would not, even in the springtime, carry heavily loaded boats; was compelled to make an extra trip. McLaughlin's conclusion that the route was well known was not pertinent, since it throws no light on the navigability of the Desplaines any more than the navigability of Mud Lake and the portage.

2965 It is admitted that they went down the Desplaines; that they navigated it, is not. As to the abandoning of the Desplaines to reach regions more directly south, that is error. Hubbard states his reasons on page 136.

As to Dr. Thwaites' conclusions, the first, as noted above, is admitted; the second is error, as proved by statement in Hamilton's Hubbard, page 43, quoted above. The third is

error, because it is known that a portion of the trail at least was established as early as 1822 (page 136, Life), while his activities continued at the same time along the Illinois, as is shown by the fact that Hamlin continued his residence at Peoria, entered the employ of the American Fur Company in 1823, and continued in that service. See Fergus' Historical Society, parts 6-9, page 51.

2966 That Hamlin continued to live in Peoria is shown by Hubbard's Life, page 138, and the Tax List in Fergus 6-9, page 48, and continued his business relations with the American Fur Company. It is a fair inference that after 1823 this often brought him to Chicago. It was to him that Kinzie sent Hubbard to get a boat to go to St. Louis. (Hubbard's Life, page 138.) That Hubbard continued activities along the Illinois river after he moved his headquarters appears from the fact that he established the new post at Hennepin.

2967 Q. Is there anything in Drown's Peoria to indicate that after the abandonment of the river route, as Hubbard narrates it, the American Fur Company still did business at Peoria?

Objection; same as preceding.

A. Drown's Peoria, page 83, referred to by complainant's witnesses and appearing in the abstract in the State case, page 678, throws light on this. I refer to that extract which has been read into evidence by complainant's witnesses showing that Hamlin had charge of the American Fur Companie's store at Peoria, and that while he was thus engaged it was that he was alleged to have taken produce to Chicago.

2968 The reference heretofore mentioned in Fergus' Historical Series, 6-9, is on page 51 pertaining to John Hamlin, in Supplemental Notes to a Lecture by Hon. John Wentworth, on Early Chicago. Nomber 7, heading of notes "After Mr. Wentworth's Lecture had been published in the newspapers he received the following information:

2969 The particular set of excerpts is headed "Chicago Marriages. Recorded in Fulton Co."; it is unsigned. (Reading):

> "John Hamlin died at Peoria in April of this year. A writer in the Peoria Transcript says, that in 1823 he accompanied William S. Hamilton to Green Bay, where he had a contract to supply Fort Howard with beef, and he arrived there July 2d, 1823. On his way back, Mr.

Hamlin performed the marriage ceremony. Whilst here he made an engagement with John Crafts to enter the service of the American Fur Company, which frequently brought him to Chicago."

Under "Notes upon the Tax Payers of 1825" I read, page 52 (Reading):

"John Crafts was a trader sent here by Mr. Conant, of Detroit, and had a trading house at Hardscrabble, near Bridgeport, and monopolized the trade until the American Fur Company sent John B. Beaubien here in 1819. In 1822, Mr. Crafts went into the employment of the Fur Company as superintendent, Mr. Beaubien being under him. He died here single in 1823, at Mr. Kinzie's house, and he succeeded him. Prior to this, Mr. Kinzie was a silversmith and made trinkets for the Indians."

2970 Have examined two publications of Major Long's report, one in National Register, Vol. 3, page 195; another in American State Papers Miscellaneous, Vol. 2, page 555.

Have examined the portions appearing in complainant's testimony in this case. They have testified Long's report would be considered conclusive by historians, because he was an expert sent for the very purpose concerning which he was reporting, and it would be a dereliction of duty had he made an untruthful report.

Q. Will you state your conclusions as to the effect of it upon the question here?

Objection; same as foregoing.

2971 A. In this report the Illinois river below the mouth of the Vermilion is navigable for boats of considerable burden; the Illinois above the Vermilion is not so deep; Desplaines is referred to as small stream having four or five ripples in the first 30 miles above head of Illinois river that make their appearance in low water. Portage from Desplaines to Chicago river made through the lake and a canal or foot path had been created at times of high water; that to render Desplaines and Illinois navigable for small boats and flats requiring but a small draft of water, nothing is necessary but construction of sluices in a few places where ripples are of sufficient width to permit boats to pass through them, which can be effected by clearing away loose stones from the bottom, and forming banks riveted with stone two or three feet high on each side. Thus opening a water communication between the Illinois and Lake Michigan,

which could be kept open at all times and sufficient to answer the purposes of a canal for many years to come.

2972 Referring to the canal or foot path, he speaks of the fact that "it had been created;" he did not refer to its use at the time he was speaking of. Long can be given considerable weight because of his official position. His academic reports should not take precedence of the evidence of men who used the route.

Q. Is there any evidence in the report or in evidence outside of the report which has come to your attention, that he ever used the river?

Objection; same as preceding.

A. Have seen no evidence that he ever used the river.

2973 Long states that the nine mile portage via lake and canal was used at high water, a condition possibly existing when he saw it. This is an inference based on the date, March 4th, springtime; of course, it is not conclusive.

Long made a distinction between the present conditions and the improved conditions of the Desplaines; evidently did not think it was navigable, since he pointed out that to make it so for small boats and flats it would be necessary that sluices be built; speaks of making these improvements to keep open a water communication between the Illinois and Lake Michigan. These facts considered in their context when the writer has been describing in detail the small rivers of the Desplaines and Kankakee, lead to the conclusion that if the Desplaines was navigable he would not speak of keeping open a water communication between the Illinois and the lake. Why not the Desplaines and the lake?

Motion to strike out witness' expressions of opinion as to the navigability of the river; not competent to speak as an expert on that subject.

2974 (Counsel agree that the objection stands as to any testimony witness may give as to navigability of the river.)

2975 I have examined Graham & Phillips Reports cited by complainant's witnesses.

Q. It has been testified by them that those passages read by them were strong evidence of a well established route of freight and communication. I will ask you to give such analysis as you may see fit of your conclusions drawn from these passages, as to the weight to be attached to the report of Graham & Phillips, and the effect it has?

Objection; same as preceding.

A. Report is dated April 4, 1819. Two years after Long's report Graham & Phillips were on other business, but reported on the practicability of water communication between the lake and the Illinois; that the Plein during half the year does not contain water enough to float a boat; and so could not become useful as a national highway; that a practical route to connect with the Plein below
2976 Mount Joliet could be formed; that the different length portages, over the longest of which is a well beaten wagon road, and boats and their loads are hauled by oxen and vehicles kept for that purpose by the French settlers at Chicago.

I am giving my analysis of the report.

2977 In connection with my statement that a practical route to connect the Plein below Mount Joliet could be formed, I cite from the report "American State Papers Miscellaneous," Vol. 2, page 557. (Reading):

> "Having said thus much of the facility of communication by the Chicago, we would now remark that several other routes are perfectly practicable. 1st. From a point in the lake south of Chicago, to enter the Plein below Mount Juliet, at or near what is called Lake Despage, but which is only a dilatation of the waters of the Plein.
>
> Both of these canals would be fed from the lake; would require few or no locks; would go over ground of the same sort; would be fifty or sixty miles long, and would join the waters of the Illinois at points from which it is constantly navigable.
>
> The route by the Chicago, as followed by the French since the discovery of Illinois, presents at one season of the year an uninterrupted water communication for boats of six or eight tons burden between the Mississippi and the Michigan lake; at another season, a
> 2978 portage of two miles; at another, a portage of seven miles, from the bend of the Plein to the arm of the lake; at another, a portage of fifty miles, from the mouth of the Plein to the lake, over which there is a well beaten wagon road, and boats and their loads are hauled by oxen and vehicles kept for that purpose by the French settlers at the Chicago."

There is evidence as to the well beaten wagon road that it was likely to be established only after the in-

come of settlers, and was due to the settlement of the country rather than to the traffic between Lake Michigan and the Illinois.

Q. What is the fact as to whether or not the intervening country at the time that report was written had been settled?

Objection; incompetent, irrelevant and immaterial.

A. The fact is as proved, I think, by evidence heretofore submitted that the country had not been settled in the northern part of Illinois. That applies to the territory between Lake Michigan and the Illinois river. See the citation from Schoolcraft in which he made the journey by the Illinois in 1821.

2979 The report states that the Plein "during half the year does not contain water enough to float a boat, so could not become useful as a national highway." This is itself a conclusion, and no deductions need be made by a historian. That the Desplaines was not navigable for commerce at that time appears from the statement that the short portage was used only in high water by early French traders, and that it was such a commerce even then as could make the portage by using a foot path; on the other hand, commerce was actually going by the long route, and was of such a nature that it took wagons and oxen to haul both boats and loads over the portage. This is substantiated by Schoolcraft meeting the traders in 1821, and that Hubbard began the process in 1824, and the report itself.

McLaughlin refers to this as a well established route. This does not imply navigability of the Desplaines.

2980 The same general route was used when the long portage was made.

Motion to strike out conclusions of witness.

The Witness (continuing). If it does imply navigability of the Desplaines in the legal sense as to what weight is to be given to the statement that "For more than half the year, etc.," McLaughlin passes over this.

His second conclusion is based on the premises that there was commerce in northern Illinois, which has been proved untrue by the evidence submitted upon the editorial of the St. Louis Enquirer. Thwaites' conclusions concerning the boats Graham and Phillips had in mind and his interpretation of the passage seems erroneous, since Graham & Phillips stated distinctly the size of the boats.

Have read the extract from Hamilton's Hubbard concerning the journey of Cass to Chicago in September, 1828.

2981 On transcript pages 793-4 (Abst., 329-330) McLaughlin fixes the date when he came up the river as September. I believe Hubbard fixes the time as that. As I have found it, Cass made that journey in July. I will have to give this from my general knowledge, the books are not here.

Same objection.

2982 In Wisconsin Historical Collections, Vol. 2, pages 329-330, Parkinson says Cass was at Galena on July
2983 6th; on page 166, Lockwood says Cass was at Prairie du Chien July 4th. Schoolcraft's "Thirty Years with the Indian Tribes," page 268, says the treaty of Butte des Morts was signed August 11, 1827, which would be after the war. Therefore on this trip Cass was at Prairie du Chien on July 4th and at Galena on July 6th and the year was 1827. Hubbard places it in September, 1828.

It was testified that the fact that Cass returned by Chicago was evidence that the route was well known at the time, and that Cass used it as a desirable one to pass from the Mississippi to the Great Lakes.

Q. As to that conclusion, what have you to say, Mr. Lee?

Objection; same as foregoing.

A. He was on a business trip, to notify settlements
2984 that the Indians threatened war; went by way of Prairie du Chien and down the Mississippi, notifying places through the heart of the Indian tribes; getting equipment and men to put down the Indians; went down the Mississippi to Jefferson Barracks; sent aid back to Prairie du Chien, and then came on to Chicago; one reason he took that route would be to notify frontier posts.

2985 I have read such excerpts as appear and were read in evidence on behalf of complainant as to the actual use of the Desplaines river in its natural condition, in the carrying on of trade or commerce. From these and the other historical references which I have read in evidence, my conclusions as to what those references show are as follows:

Objection; incompetent, irrelevant and immaterial.

The WITNESS (continuing). I have summarized and divided the authorities into four classes. First, those who actually used the Desplaines; second, those who passed over the route but did not use it; third, those who were in Chicago, but did not pass over the route; fourth, men who probably were never at Chicago; and other secondary sources.

2986 I take up the first class. Hubbard details one trip; time October, 1818; carried goods most of the way;
2987 put boats on poles; took him three weeks to reach mouth of Fox river. Cass, early in July, 1827, when the water was sufficiently high to make the portage with a light canoe used the Desplaines.

Childs in 1821 (time of year not given) made a trip up the Illinois and across to Chicago, crossing from the Desplaines to Chicago in a small canoe; water was high, and had with him only one Indian and one Frenchman.

Heward, May, 1790, went down this route, making a portage of but half a mile; exchanged canoe for pirogue; St. Cosme passed down from Chicago over this route. In the last of October and the first of November, 1698, was compelled to make a portage of 15 leagues; purpose of trip was to establish mission; had light canoe; on return trip was compelled to portage 30 leagues (See Shea's Early French Voyages, page 84).

2988 Joutel passed over the route in March, 1688, when the current was swift; compelled to pull canoes; carried no commerce.

Marquette, made an up trip, light canoe, July, 1673; no details are given. In his down trip of March, 1675, he goes on the river which leads to the Illinois (Jesuit Relations, 59); gives no other detail.

Gravier made a down trip but gives no details; acknowledges receipt of letter and simply states he left Chicago September 8, 1700.

Perrault made a return trip in May, 1784; gives no
2989 details but that he had one barge and one canoe. There is no evidence that he used the Desplaines. I have not been able to find any.

Membre went down in sleighs in January, 1682.

Furman made a down trip; having five men with him, in April, 1829.

I have considered 11 men in this first class, three of whom, Hubbard, Perrault and Heward were engaged in commercial business.

In his up trips, Hubbard made no portage in one; in another Desplaines would not carry loaded boats; while of the third he gives no details. Because of his experience, he abandons the Desplaines.

Perrault and Heward the other men engaged in commerce give us an account of but one trip. Perrault was ordered

to return to Chicago, by what route does not appear. Heward leaves an account of actually using the Desplaines in the fur trade.

2990 I now refer to the second class, those who passed over the route, but did not use Desplaines:

Charlevoix, September, 1721; intended to use Desplaines; but because river was a mere brook at that place took another route even though he was in a canoe.

Tousey, 1823; went on horseback to see country, where it has generally been ignorantly supposed that only a small sum was necessary to open navigation between them. After voyage conceived a very different opinion.

Schoolcraft, 1821, went up Illinois, but abandoned it below Desplaines; continued journey on horseback; met several traders, which proved to his mind the error of those who supposed that a canal of only eight or ten miles would be necessary.

2991 Kennedy tried to come to the headwaters of the Illinois, but was unable to do so.

Graham and Phillips surveyed the land along the proposed canal route and reported that "during half of the year the Desplaines does not contain water enough to float a boat, and thus could not become useful as a national highway."

Of the five men considered, Charlevoix, Schoolcraft and Kennedy could not use it; Tousey and Graham and Phillips report positively against the navigability of the Desplaines.

I now refer to the third class—men who were in Chicago, but did not pass over the route.

Keating reports the Desplaines could be navigated; as he was never over the route and was a careless observer, his generalities based evidently upon Hopson's statements must be rejected. His statements contradict contemporary statements of those in a position to know better than he concerning things of which he spoke.

Long probably reported in the spring yet concluded that the river to be navigable for small boats and flats must be improved.

2992 I now refer to the fourth class,—men who probably were never at Chicago; and other secondary sources.

Darby came only to Detroit.

Morse based his evidence on Hutchins.

The evidence used as Woodruff's to prove the navigability of the Desplaines was not Woodruff's at all.

Imlay based his statements on Hutchins, who in turn based his statements on Kennedy.

The editorial is classed as secondary authority; written by men who had not passed over the route; makes statements contrary to the facts and impossible.

Woodruff, Darby and the editorial should be given very little weight in considering the question at issue; while
2993 Morse, Imlay and Hutchins all rest on Kennedy, who could not pass even to the head of the Illinois.

Q. State whether in your judgment, from all these references which were included in the question which you have just been answering, it can be properly deducted that men engaged in trade passed up and down the Chicago and Desplaines rivers in canoes or flat boats regularly?

Objection; incompetent, irrelevant and immaterial.

A. I conclude that they did not.

I hardly think it would be true that there was an active trade on these rivers in the period between 1783 and 1825.

Hubbard attempted to use the Desplaines during that period, but at its close he was compelled to abandon the
2994 attempt. He began in 1816 or 1818.

Q. Aside from Hubbard, is there any evidence of regular use of the river in trade between 1783 and 1825?

A. Have found two other instances of men who used the Desplaines, and they used it but once. That would not
2995 be regular trade.

Q. Is it a fair conclusion from those passages that fur traders quite regularly passed up and down the Chicago and Desplaines in the first third of the nineteenth century?

Objection; same as heretofore; leading question.

A. I should think not.

Q. Is there any evidence in those passages that the fur traders actually and quite regularly or ever used the Desplaines river?

Objection; same as preceding.

A. No, sir.

Q. Not as an expert on navigation, but from your experience in the study of the population and settlement of countries, and from your examination of all the historical references which have been included in your examination, and which have been referred to therein,—I will ask you to state whether you have an opinion as to whether or not the Des-

plaines was in its natural condition navigable for purposes of useful commerce?

Objection; same as foregoing.

A. I should think it was not; that would be my conclusion.

2996 First,—if it had been navigable, it would have been used during the settlement of the country; I find no evidence that this was done.

Second,—of the authorities I examined who gave evidence of the use of the Desplaines between 1673 and 1830, but one attempted the continuous use of it for commerce, and he was compelled to give it up; while the remaining authorities, who are most competent to speak, report against the navigability of the Desplaines.

Third,—that since 1830; first, that when a commerce did exist which might have used the Desplaines, other methods of transportation were used, and there is no evidence that the river was used. Second, the head of navigation was always referred to as being on the Illinois river. Third, the Canal Commission of 1825 report that the river was not navigable.

Fourth,—it was not considered navigable by the Legislature or by Governor Coles.

Fifth,—its navigability is not indicated by prices at Peoria and Chicago.

Sixth,—the Illinois and Michigan Canal changed the direction of freight.

2997 Q. What is the significance of those differences in prices as bearing on this question?

Objection; same as foregoing.

A. Prices between two different points or two different markets will differ under ordinary conditions only as to the cost of transportation. In the excerpts which I read there was found to be a very great difference in prices between Chicago and Peoria, which leads me to conclude that if a navigable channel were possible, this difference in price would not have existed; higher prices were at Chicago, due to the fact that at the time Chicago was connected with the east by lake transportation, and had the advantage of eastern markets, which Peoria did not have. In Springfield and other towns in the southern part of the state, prices of wheat and corn for export were much lower. Down along the Illinois river they were lower than in Chicago.

2998 *Cross-Examination by Mr. Wilkerson.*

I am not registered at Chicago University; have not yet taken my examination for my doctor's degree.

2999 Am prepared to take it. Have not set the time because my work as instructor at Lewis has been so heavy. Have worked at Chicago University under Professor McLaughlin.

3000 Of his courses I took courses in constitutional history of the United States, consisting of two courses; that was seminar work. To do that work you have to do historical critical work.

3001 My first work of that character was examination into the internal history of New Hampshire. I went to the Colonial records, such as Belknap's History of New Hampshire, and used them in connection with secondary sources. Would find out the history of the particular part of the state from the records, possibly finding that the history of the eastern part of the country differed from the history of the records of the history of the western part, and

3002 in that way continued my studying; it was done under the direction of Professor McLaughlin; had worked under him for two or three years. He is the author of criticisms of different historical works. He was editor of the American Historical Review, and has a good standing among historians and students of history as a critic of historical material. One of the best in the country. I would name

3003 Jameson as being a man who has criticised more material and knows more American history in all its phases and details than has McLaughlin, who has used his source material along constitutional lines. Have read some of Jameson's criticisms, some of which appeared in the American Historical Review.

3004 I would put Jameson in Professor McLaughlin's

3005 class. If McLaughlin went carefully into a question and drew conclusions, I would respect them; would give greater weight to them if drawn on constitutional history, or from some constitutional authority, than on any other subject; as he told me once himself, he knew no other history than constitutional history. All his courses are given along that line, and he has done little work writing on western history. He wrote a life of Cass I heard him once say he wished was not published; and he has written an article or two for the American Historical Review on western posts—I believe

War of 1812 after the surrender of them; also an article on Lewis Cass' influence on the west. Aside from that has confined his whole attention to the constitutional history of the United States.

3006 McLaughlin has a good standing as a historical critic. His conclusions should be considered but should not be final if after examining the authorities he criticizes and using historical methods, his conclusions were found to be invalid. They would not overthrow the work of methods which are proved by authorities.

My own conclusion would be subject to the same tests.

Any historical criticism that is done would have to be submitted to the same tests to find out whether it was done well and scientifically.

3007 Dr. Thwaites is known as a wide publicist; has published and edited many works and written a number of volumes; has always had a good standing.

With the exception of my doctor's thesis, have prepared nothing for publication.

3009 In my thesis I had no purpose of writing a history of the Illinois and Michigan canal; and have written nothing about it except what appears in the paper itself. In connection with its preparation I came across much material, and made notes under the general heading of the northern
3010 and southern routes by which I meant the commerce down the Mississippi and by New Orleans would be the southern route; the northern route being through the canal and Chicago.

The thesis is not completed yet; it is not published.

3011 I began my preparation to give evidence in this case about six weeks ago—perhaps a month.

3012 The material I have used in preparing myself to testify has all been obtained as the result of my original research. Some advertisements and some materials from Benton(The Wabash Trade Routes) and Hurlbut were called to my attention, as will appear from the record of these proceedings.

3013 My method of procedure with reference to the evidence I have given as to the hauling of goods across the country along the Desplaines was to read over my thesis, select the footnotes which seem to bear on the question, refer to the sources cited, and make further note of them.

3014 As to the use of the Desplaines from 1818 to 1835 I used my notes and citations; there were a few which

were called to my attention when I testified; not more than about half a dozen; they were primarily the newspaper advertisements.

3015 Have been through all the newspaper files from the historical society, that were brought here, at the time I prepared my thesis; every issue of the Peoria Register and Northwestern Gazetteer, the Democrat and the American; and at the time I verified my notes I went through them again. Monroe pointed some of them out to me because when taking my notes, I was not getting them with this idea in mind, so did not take down all the advertisements.

3016 Have read all of the newspapers with this object in view in a general way when I verified my notes. Those called to my attention by Mr. Munroe were advertisements running through a number of issues. I had noted advertisements in particular issues, but did not follow them all

3017 out through all the issues that they could have been given in. It was not my attention to give the idea that there was nothing on the subject but what I cited.

3019 At Lewis Institute I am assistant professor of history and economics. Dr. Quaife is acting head of the department. Lewis Institute is situated at the corner of Robey street and Madison street. Lewis Institute started out as a technical and engineering school. It has grown in its scope and now has three thousand students, some in night work; more than half in day work; the night work is independent of the day work. It was established 14 years ago.

3020 They confer engineering degrees and the bachelor degree, which latter corresponds with that of the University of Chicago, where it is affiliated and its work is accepted the same as the university work. If a Lewis student took full bachelor work he would enter the graduate department of Chicago.

3021 I have classes in American history and industrial history of the 19th century, Europe; and am giving one course in academic work. We do no post-graduate work there. I have no students in historical criticism. In the collegiate department I give a course in current problems, which treats of corporations, and the development of indus-

3022 tries; and have a course on United States history since 1865, on reconstruction; and a course on municipal government; I treat it as a historical study; the students

come principally from sophomores and juniors. That is
3023 my most advanced course. These courses in which I deal with special periods of American history and dealing with special problems of this kind. Another course that would rank along with that is a course in labor problems, in which I take up and develop; the history of labor institutions and labor troubles and a study of laws that are passed in regard to labor. As I have treated it this last year I took up and made a study of the laws that have been passed in regard to labor legislation and the labor situation; pointed out the development of that as I found it, not only in America, and by America I mean the United States, but also in Canada and in Australia and in New Zealand and in Germany; making a comparison of those laws, bringing them down to a study of the conditions.

As to whether counsel is right in assuming that my work as a teacher has been principally on the side of economics or political science, that phase of the subject, I would ask what do you mean by economics. As we treat it out there, the two are closely related, in the group of social sciences, and my work as I have given it has been developing those subjects historically.

3024 That is the historical phase of those subjects, and I also presented the other side of it, that is, I presume, what you mean by the economic side of it.

COUNSEL FOR GOVERNMENT. I was rather attempting to draw the distinction between the work of this historical critic pure and simple who looks at history merely for the purpose of finding out what the facts were, and the line of work which develops the historical phase of certain branches of study relating to present problems.

A. As I explained, in dealing with those problems and dealing with them as we do out there under the department, we class those subjects all under the one group of social science, where we treat the subjects about as we desire, and I have told you how I treat the subject.

I have not had any legal training at all. I have never
3025 taught Illinois history nor the history of this Northwestern country, except as I have treated it in the courses which I have given, and then only treated it in connection with these particular phases of present problems.

As to whether with reference to this work of historical criticism, it is recognized as a separate branch of historical study, I would say no, it is distinct, in that it is differ-

ent from the narrative course, but it is a part of this historical work. For instance, to explain what I mean: At the University of Chicago they are planning a course in which they take a number of men in each department and give them different phases of that kind of work, thus bringing to bear the specialists in the different fields to deal with that subject, so that it could not be set aside as a distinct phase of history. Any trained historian who has been trained along that line and who knows how to use the historical methods can do historical critical work.

3026 McLaughlin says historical criticism is the distinct work of the historical field, distinguished from the economic and political science and sociology. With reference to that, on which side of the line my work at Lewis falls depends on how you treat it; it goes without saying I am not giving graduate courses there.

3027 I pursued some studies under Wilcox of the University of Iowa; took seminar work under him for a year; also his lecture methods. Collected particular problems from different fields and worked them under his direction; they dealt wholly with American history.

3028 Do not remember the subjects I worked out. That was five or six years ago. I remember one Randall worked out, The History of the Mormon Church. I believe I had a topic concerning the administration of the first John Adams.

3029 It had to do with the close of Adams' administration. It did not have to do with the alien and sedition laws; don't know whether it took up the midnight appointments or the attitude of Adams at the time of his defeat.

3030 Do not recall the subjects discussed in that seminar period. Wilcox has done no writing; has devoted his time to teaching. Has written a number of reviews. Is the head of the department of the university of Iowa. Has a good standing among historians, but is not a man published as widely as Albert Bushnell Hart. He worked at the University of Chicago when that first opened.

3031 Professor Shambaugh is at Iowa in the political science department; now spends his time in publishing and in the Iowa State Library. Had a course of comparative government under him. He has collected a good deal of material and has done much work in Iowa history. I

should say he is capable of careful work. I had but one course under him.

3032 I first referred to Langlois Seignobos on historical criticism at the University of Iowa; used it as a reference work when I was doing that work. Do not have in mind his rules for historical criticism. Have not tried to make my work square with those rules; I submit my work as the result of methods a historian would use; have not referred to Langlois for some time.

3033 Have outlined the methods I used in the preparation of this work. Langlois is one of the reference works of historical critics. If one followed the method laid down by Langlois for testing the accuracy of what I have testified to here I would not say that he had followed the correct method. The best way would be to have a trained historian examine the same sources and apply the methods he would use to find out whether the conclusions were sound or not; and if that historian reached a different conclusion, another historian capable of making an analysis should test the

3034 two studies to find out the degree of preparation the men had gone into. For instance, if I have gone into this subject and thoroughly analyzed the authorities in hand and applied intelligent criticism and drawn intelligent conclusions; the other man has done the same thing but done it with less thoroughness, or with greater thoroughness, the man who would go into the question of determining which one of those conclusions was right, would have to go into the question as to the degree of thoroughness with which the preparation had been made.

Q. Let me go back to my question again, and I want to be sure I am right about this, because you had a good deal to say on your direct examination about historical criticism. I am trying to get clear in my own mind just your method.

Let me put this concrete case to you: Assume I know nothing about historical criticism.

A. Yes, sir.

Q. And I am trying to ascertain what is the truth about some historical fact and I turn it over to you and you come to me with one conclusion. Now I am assuming I do not know anything about these technical methods of historical criticism to pass judgment on your work. I then turn the same thing over to another historian and he furnishes me a

different result. It there anything in Langlois Seigno-
3035 bos, any method there laid down to which I could go to inform myself as to the test which I could apply to the work of yours and of the other historian, with a view to seeing which of you was right?

A. You would be likely to be led astray. You had better get a trained historian.

If you went to a trained historian, as to whether the relative standing of the historians to whom you had gone would be a factor which you would be entitled to consider in determining who was right, in my judgment, according to my system of historical criticism I would say that probably you would let that affect you.

You should not let the relative standing of the historians affect you if you found that one man had made a thorough preparation, and the other man had not. For instance, if you found that one man had merely examined particular excerpts and confined his conclusions to them, that he had not examined the authorities and did not know the context of the books from which those excerpts were taken, and that he had not gone into the subject thoroughly.

3036 If each had investigated with the same degree of thoroughness, the relative standing of the historians would probably have some weight. I would not let a man's official position, or the number of books he had published, determine the weight of the conclusion at which he had arrived. If the question came up whether one was thorough in his preparation and the other was not, I would get a trained historian to investigate it.

3037 In drawing a conclusion yourself you would be likely to be led astray; I would find out if the men differed, which one made preparation, and if one admitted he had made no preparation I would examine his work quite carefully. If the man who had made a thorough preparation was illogical, the question would be solved by getting a man to make an equally thorough preparation, and examine the same authorities.

3038 If two men had spent the same amount of time, one had studied as careful as the other, but they had reached different conclusions, you would look over the work carefully and find out whether they had gone into the works and analyzed them carefully. You can tell whether a man is careful or not by the result of the work he submits.

As to a man whom you say ignores facts and reaches his conclusions from others, it would depend on what you mean by ignoring facts. On consultation you might find that he weighed facts but decided that they should not be given the weight that other facts should.

3039 A man who would eliminate certain statements from Long's report or Graham and Phillips' might be careful or might be careless. He might posisbly have overlooked them and yet be a pretty careful student. To omit anything important would be an indication of carelessness.

If one man cites certain authorities but the other does

3040 not; one man questions one authority while the other accepts him, I would ask the man who had not given any attention to that point as to whether that held good or not, and get his opinion upon it. The careful historian ought not to base a conclusion upon one point where there are eight or ten points that bear directly upon the question. They should be given equal weight. If his conclusion is based on one fact which is isolated and ignores ten or twelve of equal importance, he would not be following the method of a carefully trained historian.

3041 I know in a general way that the evidence that is taken into consideration in a case has to be weighed, but just what comes in as legal evidence and what is not allowed to come in is clearly out of my province.

3042 I know the tests that are applied in history.

I presume I have as a student of history come in contact with the line of books in which writers have undertaken to apply to historical questions—miracles, for instance—the rules of legal evidence.

3043 Don't recall any particular authority. Have read something in regard to the testing of evidence. Have heard some evidence taken, and discussed with lawyers what should be taken; but just what should be taken as legal evidence, I could not pose as an authority on that.

3044 I believe Professor McLaughlin spoke of that in his lectures. He took a law course, I believe.

As to whether I understand that Professor McLaughlin has a mind that is trained to look as these things from the standpoint of the rules of evidence, I would say, he took a legal course I think at Ann Arbor.

As to whether his standing among historians is as a writer of history and a student of history who has had a legal train-

ing, I would say I do not know, I presume it is. Of course, his standing as a constitutional historian is recognized.

As to whether his standing is recognized not only as a constitutional historian, but as a historian who is familiar with the elementary rules of evidence and the elementary principles of law, I would say I never heard that phase of it emphasized,—that because he had a legal training he was a better historian.

As to whether I had a distinct course in this work of historical criticism, or whether my familiarity with this
3045 subject has grown out of the seminar work which I have done in connection with the study of different historical questions, I would say my knowledge has grown largely out of lectures from different men that I have attended and from the methods that I have used. I never had a distinct course in that phase of the subject, other than the course I took under Professor James W. Thompson of historiography and bibliography, but the methods I have outlined as being methods a historian should use were not dealt with particularly in that course. The course was different from a course in historical criticism.

As to whether I ever did have a distinct course in historical criticism, I would say, not other than I have given you
3046 already, and this Langlois Seignobos, I have read in connection with my other studies and have not made a critical study of it. I have never read it through.

As to whether I have ever studied it by the text book method, that is to take a book and study it so I could be examined on it, I would say that in the university method now they use the lecture method, in which the professor gives you the result of his knowledge and his training in lectures, and cites you to a number of books and gives you certain problems to solve and work out in the light of the criticism he has given; and then he criticises the results of your work, pointing out wherein you have erred, wherein you have made mistakes and what lines you should follow. This Lang-
3047 lois Seignobos is one of the books to which I have been referred in this way, and I have read parts of it. I am not familiar with Bernheim Lehrbuch Der Historischen Methode. I know of the book; I never studied it; I never read it; I do not know whether I have been referred to it or not. As I have not used the book I could not tell you as to whether I ever came to know the method there laid down for testing the accuracy of historical statements. Possibly Professor

McLaughlin or some of these men I have been studying under have been cribbing from that book and given me the result of it. I could not say as to that. I do not know.

3048 Not being familiar with the book I don't know whether I would want my conclusions on historical matters on which I have testified, decided by its rules and methods. I would prefer to have the result of my work squared by a trained historian. Professor McLaughlin is capable of making a study and drawing safe and sound conclusions. I presume I would regard Thwaites as a trained historian, but he is widely published and has a great deal of his work done by others. Don't know what Alvord's training is. Never went carefully into his work to find out how thoroughly he had examined certain authorities, or whether he was

3049 critically trained.

Submit my work as it stands to a trained historian, and let him square it with methods known to trained historians, and let him draw his conclusions. I have outlined in my direct evidence the methods I used—whether it come direct from these books, or whether it comes from professors, or whether I have observed it. If it is not the method of a trained historian it will clearly not stand. It would stand or fall by that test.

3050 It is a very difficult problem to establish what is understood by historians to be a universal negative. I would not say it was impossible to do it.

As to how I would go about doing that according to my method, establishing that something never took place,

3051 the universal negative, I would say you would have to give me a specific case. If you wanted me to state there was never any universal law in the solar system, that would be difficult to answer, hence I would rather you would cite a specific case. Cite a historical problem.

Suppose you wanted to show that a man by the name of John Smith had never lived in Springfield along during the period from 1840 to 1850, I would go to all sources that I could find that would throw light upon who did live there, and would then—well, I would go to all of those sources and would weigh those sources.

Q. Suppose you found no mention of John Smith at all any place; would you feel justified as a historical critic in reaching the conclusion that a man by that name had not lived there at that time?

A. If I found no mention at all?

Q. Suppose you had searched the directories and cemeteries and everything else and found no man of that
3052 name.

A. That would be one—you want to know whether after I had looked up all the sources that I could—

Q. Yes.

A. Whether I would draw a negative conclusion that that man was never there, never had lived there?

Q. Never had lived there, yes.

A. That is at that particular place, you mean?

Q. Yes, at that particular place and time.

A. You are talking about a particular man?

Q. No, a man by a certain name; suppose you had just the name of the man.

A. If I could not find—then I would look to see if I could find any evidence about that particular man.

Q. Suppose you did not.

A. Did not find a bit of evidence?

Q. Did not find his name any place.

A. That he never even lived?

Q. Did not find any reference to him any place; suppose you searched all the newspapers and the cemeteries and the directories and found no mention of his name.

A. Well, having—do you mean a particular man that we know lived? Is that what you mean?

Q. No, my question is this: I want to find out whether a man by the name of John Smith lived in Springfield, Illinois, between the years 1840 and 1850. I mean any man who
3053 bore that name.

A. The only conclusion that could be drawn would be that I could find no evidence.

Q. You could find no evidence that he did live there.

A. That he did live there.

Q. As a historical critic would you feel justified in stating as your conclusion that he did not live there?

A. I think I have made my conclusion strong enough.

Q. That is as strong as you could possibly make it, that you could find nothing?

A. I should state that I could find no evidence that a man of that name lived at that place. That is as strong as I should make it.

Q. As a historical critic and according to your method of historical criticism, what light would that throw on the sub-

ject of whether there was a man ever lived there of that name?

A. I think I have stated my conclusion.

Q. That would not help me very much in determining whether a man by that name had lived there, would it?

A. You are presuming a case there, where you do not know whether such a man existed or not.

3054 Q. You asked for a specific case. I put it in general terms first and then you said you could not answer without an illustration and I gave you an illustration.

A. Why, the only conclusion I could draw is that I could find no evidence.

Q. Isn't it true, that very few men in the history of the world make any record of what they do? It is the exception to the rule where you find an affirmative record that a man has done something?

A. Do you mean by that conclusion that the weight a historian would put on positive or negative evidence—

Q. No, I am asking you, as a general proposition of historical criticism, is it not true that of the thousands and millions of men who live, that it is only here and there that you find put down on paper any place a record of what the man has done?

A. He might have kept a journal. Thousands do not, of course.

Q. But what I mean is this: Are there not thousands and thousands of men who live without ever having a single record made of a single thing which they do?

A. I presume that is true.

Q. You know that as a historian?

A. I presume that is true.

Q. And that of the thousands of events that happen, of the millions of events that happen it is only here and there

3055 that you find a record affirmatively that something was done?

A. I presume that the affirmative records of any thing having been done which we find are very scanty as compared with the happenings. That is a difficulty that the historian has in reconstructing the past, and is why he has to be very careful.

As to whether or not this is particularly true in new countries among illiterate people, and where there are few means of recording the things that have happened, I would say that depends upon what you mean by historical evidence; we have,

for instance, many lines of evidence to point out the movements of Indians this country, as to where they
3056 camped on portages, and we dig into the earth and find out what was done there and find out their general movements, but that does not reconstruct their whole past. We have a limited amount of source material.

As to the 40,000 men who were in Illinois in 1818, I presume it would be a very small per cent. who have left a single written record of anything they ever did; as is shown, for instance, by citations to our historical records; we have not the complete records of all the governors of the state.
3057 Suppose you were only able to find among the early records of Illinois an affirmative record of six men who had raised wheat in the year 1818; I should think that it would be an indication that there were more than six men that had raised wheat if I found a record of six.
3058 As to whether I do not recognize it, as one of the things you must have constantly in mind in this work of historical criticism and that is that it is only occasionally, here and there, with respect to the ordinary affairs of business and commercial life, that you find an affirmative record on which the historian can put his finger will say the historian will place greater weight upon positive than on negative evidence. The affirmative record is an indication that there were other things of like kind. As to whether there were many others would depend wholly on the question in mind, and upon the circumstances. I don't know that generalizations could be drawn upon that point. That is why I answer as I do.

With respect to the ordinary matters connected with the living of the people or their business, I think it is clear that you would find few affirmative statements which are pre-
3059 served in writing when compared with the extent of the method of living or the business practices.

With respect to the number of window glasses that were used in England, for instance, I would not expect to find a written record of the past, or record by which I could fully reconstruct the past.
3060 A historian would try and get as many facts as he could and determine that they were facts, as he could, giving evidence on the subject on which he was writing. If you got a few facts of that kind, was able to find a few written records which were followed up by the statement of writers of standing and of known accuracy, who made the

general statement that that was true, as to whether a historian would feel that he was on pretty safe ground, that would depend wholly on what the thing was on which he was speaking, whether it was a detached or the principal thing. If I found no evidence to the contrary, I should think I would feel that he was on safe ground.

3061 I have met Ellen Churchill Semple, whose work "American History, and its Geographical Condition" I have cited. She has written a number of articles on this and kindred subjects. She and Turner, and two or three others reported to the American Historical Association on the relation of geography to history, or the economic background of history, which is published in the American Historical Association report. She gave a course at Chicago University, which I took, wherein she used that particular book. She was on the staff of the university at that time. She has been there two or three times, in the summer. She was not on the regular staff. I only know the general standing of the book.

3062 The book should be examined with the same tests that are applied to other books which I have put in evidence if there be any question as to the value of the excerpts before they are taken as authority. I would attribute a certain value to it. In that particular book she has attempted to cover a very large subject; I would say that she was a careful writer. I remember a review or two which spoke of it as being a good book; one by Albert Bushnell Hart of Harvard University, who is published widely and has written a number of books; is editor of the American Nation Series, and 3063 other books and articles. The fact that he reviewed it and said it was carefully written would have weight with me in determining its standing, especially as the review was given in the American Historical Review.

3064 In "American History, And Its Geographical Condition," by Ellen Semple, I find the following, page 22: "Rivers were the only highways into the interior, and up the rivers, preferably those flowing from the north, went the American colonists, * * * the trapper, trader, and voyageur always in advance."

(P. 28):

> "The great number of the portages both offered a choice to the traders, especially advantageous in time of war with one or the other of the Indian tribes in-

habiting this region, and enormously increased the voyageur's sphere of activity by opening up to him all
3065 the country drained by the Ohio and Mississippi.

The order in which these portages were discovered and used by the French was determined in part by the political neighborhood of the hostile Iroquois along the southern shores of the nearer lakes, and in part by geographical conditions. Up to 1670 the westward route of the canoe fleets was up Lakes Ontario, Erie and Huron to the westernmost outpost at Michillimackinac on the Strait of Mackinaw. This trading station could be reached also by a more direct northern route from Montreal up the Ottawa river, across to Lake Nipissing and Georgian Bay,—a route which was often used when the Iroquois were on the warpath about Ontario and Erie. Further progress thence naturally led up the waterways afforded by Lake Superior and Lake Michigan to the portages which the Indian described as leading to the western waters. The consequence was that the passages earliest known were those remotest from the Canadian settlements. The first carry route used by the French led from the head of Green Bay up Fox river, across the northern part of Lake Winnebago, and along the upper Fox river for sixty or seventy miles to a narrow portage of two miles, leading to the head of the Wisconsin river. This was the route followed by Marquette and the fur-trader Joliet in 1673, when they explored the Mississippi to the mouth of the Arkansas. The other of these earlier portages was across the narrow, lake-dotted watershed between the
3066 St. Louis river, which flows into the western extremity of Lake Superior, and the easternmost bend of the Mississippi.

By the end of the seventeenth century the portages at the head of Lake Michigan were the best known. There were a number of these close together. The Chicago river, the lesser and greater Calumet, and the St. Joseph all led by short carries to the Desplaines and Kankakee branches of the Illinois. The Lake Erie portage, though affording nearer, more direct routes by the Ohio tributaries to the Mississippi, came into use only in the eighteenth century, and here, too, the progress was from west to east."

(P. 30):

"Having swept westward up the broad highway of the Great Lakes to the upper reaches of the Ohio and Mississippi, the French went to work more slowly to secure all the portages to these rivers and to occupy every strategic point at the extremities of the lakes. Forts Frontenac (Kingston), Niagara, Rouille (Toronto), and Detroit were designed to command the lakes,
3067 as Fort St. Louis on the upper Illinois and the post of Outianon on the upper Wabash controlled the Chicago and Maumee portages; while Vincennes, Cahokia, and Kaskaskia completed the line of connection with the lower Mississippi. The vast area thus opened up to the French by their possession of the two great waterways of the continent led to the ultimate shipwreck of their colonial venture, because the large extent of the territory lured them to exploit its trade rather than make permanent settlements. They spread themselves thin over an enormous area, yielding to the danger of too great expansion."

Do not remember considering the map in this book, facing page 28; nor have I considered the passages just read into the record. The map is entitled "Portages between the Great Lakes and the Mississippi." It indicates, among
3068 others, the Chicago-Desplaines portage. On the map is a key, and the word "Portages," and the checkmark indicating how they are marked. There appear here, some are marked by two checks and some by one. I find no key to the significance of their number.

3069 It is a possible interpretation that single check means a short portage, and two or three checks mean longer portages; cannot say positively without an examination. Without regard to their meaning, I find a checkmark on the map between the Chicago and Desplaines rivers, at or about the point where a portage has been referred to by authorities I have cited.

3070 It is indicated as the extreme point of the South Branch of the Chicago; and from there across to the Desplaines it indicates the place roughly.

(Whereupon the witness being directed by counsel for complainant, read the following passages from Semple's work). Page 154. (Reading):

"In northern Illinois, the Sac, Fox and Pottawatomie

tribes delayed settlement in large areas of fertile land which they held.

The decade from 1830 to 1840 saw the title to all these Indian lands gradually extinguished by the federal government and the tribes themselves removed to the Indian territory. Within two or there years thereafter, the area thus relinquished was covered with a comparatively dense population, and in the next decade was as thickly settled as any parts of these states. Here there were no scars because no adverse natural conditions."

(P. 159):

"Along the Mississippi boundary of Missouri was the gathering of the waters; hither turned the Ohio with its vast tributaries, the Illinois and the Missouri. The Mississippi furnished communication with the Gulf below, and with the Green Bay and Chicago portages above Missouri was accessible to American settlers from the Lakes to the Gulf, and straight across its broad territory ran the natural highway of its own mighty stream."

(P. 264):

"Men like Washington and Jefferson, who were alive to the political as well as the commercial benefits of communication across the country, saw the possibilities of canals in completing the circuit of vast interior waterways. 'Extend the inland navigation of the eastern waters—communicate them as near as possible with those which run westward;—open these to the Ohio;—open also such as extend from the Ohio towards Lake Erie,—and we shall not only draw the produce of the western settlers, but the peltry and fur trade of the Lakes also to our ports * * * binding the people to us by a chain which can never be broken.' In 1786 Congress declared all the portages between the Ohio basin and the Great Lakes common highways."

3072 (P. 272):

"The route of the fur-traders from Lake Michigan down the Illinois, which seemed peculiarly adapted to canalization, early (1816) attracted national attention as a military and commercial waterway between the Mississippi and Lake Michigan. The masacre at the mouth of the Chicago river in the War of 1812 empha-

sized the isolation of the northwest lakes. In 1817 Major Long in his report to Congress regarded such a canal as 'first in importance of any in this quarter of the country;' but though projected in 1825, owing to difficulties both technical and financial, it was not opened till 1848, and then proved disappointing as an investment, chiefly because the upper Illinois river needed artificial aid to make it navigable to any but small craft. The same difficulty was present in the waterway of Green Bay, Fox river, and the Wisconsin. The canal connecting the great bend of the Wisconsin with the Upper Fox was only two and one-third miles long, but the sand-bars of the Wisconsin, the shallow, tortuous course of the Upper Fox, and the numerous rapids necessitating canals on the lower river, robbed this waterway of much of its value, and made it succumb rapidly to railroad competition. These western chan-
3073 nels over the Great Lakes watershed, being constructed later (1845-53) than the Erie and Ohio canals, because on the frontier of settlement, felt the deadening grip of the railroad before their traffic had become established and suffered moreover the disadvantage of reaching less navigable outlets into the Mississippi river."

In a part of my direct testimony I have read into the record from pages 251-2-5-7 of the volume from which the excerpts just read are taken, and gave the passages as credible statements of history. As to those I have just read I would have to examine more carefully as to whether or not they are entitled to the same consideration from the standpoint of a historical critic. It deals substantially with the same subject-matter.

3074 I would have to read these carefully; for the purpose of determining the historical facts stated, I should think that would be taken from reliable authority. Although she deals with a large subject, she presents accurately the larger truths and phases of the subject with which she is dealing, and in that sense these excerpts would be taken as good authority.

3075 I should say that in regard to all these passages, just read, from this first reading I should say the first statement on page 154 is true. I see no objections to those on page 159 from my personal examination.

3076 Where the writer says "The Mississippi furnished communication with the Gulf below and with the Green

Bay and Chicago portages above," I would presume that she had in mind those same general portages that she referred to in the earlier part of the work.

The passage on page 264, which closes with "highways" and refers to the Act of Congress of 1786, could be proved by looking at the records to find out what Congress did declare. I have no reason to doubt the accuracy of the
3077 statement, nor the significance given to it.

"In 1786 Congress declared all the portages between the Ohio basin and the Great Lakes common highways."

To be certain about it, I should find out what Con-
3077 gress did pass. From my knowledge I presume that is true, but the way to determine that with more accuracy would be not to take it from my memory or general knowledge, but to go back and look it up and see. It is my recollection that Congress did do the things described, in 1786.

3078 Further than that I have given no consideration at all to the legal phase of the question, as to whether it was a legal highway, or not, nor to the significance of this action on the part of Congress. I know in a general way Congress at this time was inclined toward internal improvements; they were building canals.

3079 I see no objections to the statements as they stand in the paragraph on page 272, on the Green Bay, Wisconsin, Fox river waterways. They agree with my general knowledge.

3080 As to the bearing of these passages upon the question of the nature and extent of trade in the western country from 1750 down to 1800, these excerpts, of course, are taken from different passages and different chapters. Judging from my present reading, I remember she says in one or two cases the fur traders and the route of travel. She was referring to commerce and westward expansion, and speaks about connecting the eastern waterways of the Atlantic with the western waterways by means of portages.

Q. It is plain that she does assert, is it not, that there was commerce through this part of the country during that period?

Objection; the text speaks for itself.

3081 A. I don't see that these passages throw light on the particular subject of commerce through Chicago. In the first reference, page 28, she speaks merely of the fact of the

great number of portages offering a choice of the traders. That is a general statement.

3082 On page 29 she simply calls attention to the fact that the first carrier route used by the French was Green Bay and the Fox river and the Wisconsin. She also says by the end of the 17th century the portages at the head of

3083 Lake Michigan were best known. That would indicate that there was a certain amount of travel or trade down through this general route, judging from the excerpt that is before me. It would be merely an inference that this commerce continued down until the 18th century.

You ask me to judge as a historical critic; one cannot use historical critical methods by merely reading an ex-

3084 cerpt without looking it up. The inferences I have been drawing have been drawn from closer study than I can give this in a moment.

In connection with the commerce from the north through the Illinois by the Chicago portage, and my consideration of the statement that "hundreds—nay, thousands of boats have been seen at St. Louis;" don't remember that I had in mind the date that St. Louis was founded, being a date as far back as 1764.

3085 I remember the name Laclede at St. Louis; can make no positive statements about him; made no investigation as to the extent and nature of his buniness, nor the volume of trade or commerce that went out from St. Louis to the north in the period from 1764 to 1808 or 1809, other

3086 than the general statements I came across in reading my thesis, which would throw light upon that. I don't recall any particular things that related to the trade and commerce of the early settlements in southern Illinois, the settlement of St. Louis, and the nature and extent of commerce to and from southern Illinois and St. Louis previous to 1815.

Have made no study of the history of Cahokia or Kaskaskia, or of the business and trade there.

I don't think the writer of the editorial in the St. Louis Enquirer made the statement that during an indefinite period prior to the year 1816 or 1817, hundreds and thousands of boats have been seen at St. Louis, which came down from this northern route.

3087 He said "hundreds—nay, thousands of boats have passed down this way," referring as I understand to the Illinois river. He did not say where the commerce came

from. The subject under consideration was on the projected survey of the canal.

From my knowledge I should think that that statement was incorrect.

3088 At that time it could not pass from Chicago, because Chicago did not exist. The fort had been destroyed in 1812; was reconstructed in 1816. You make the date 1815.

In the light of what has been called to my attention I hardly think those boats could come down from places on Lake Michigan as far up as Mackinaw through the Chicago river, over the Chicago portage, and down to St. Louis.

3089 You have called my attention to the fact that over this general passage there must have been a number of boats, which would be an inference that they passed down this route, but other than that, as a historical critic, I 3090 recall nothing in the account throwing any light on testing the truth of the editorial.

One excerpt calls attention to the fact that these portages south of Michigan were best known by 1700; that would give fory or forty-five years from the establishing of St. Louis.

3091 You wouldn't use the Erie portages to get down from Lake Michigan, but our opinion that they went by way of Lake Michigan is a mere conclusion based upon inference, if it is a conclusion at all.

I recall that passage which states that the portage at the head of Lake Michigan were best known by the end of the 17th century; and another in which she directs attention to the fact that commerce went by Green Bay and the Wisconsin river. She says "draw to our ports." We may infer she was thinking of "our" in the sense of American ports, and to draw the trade from another country. If she had in mind that longer period, it would not run back farther than 1783, when the Independence was declared.

3093 In connection with the rest of the editorial, I considered the passage "The French of Canada and of the Valley of the Mississippi have communicated through this channel since the settlement of the country." Don't know that I took that particular statement and checked it up in detail to determine its accuracy.

3094 I drew my conclusions only from my knowledge, judging as to the extent in which it was used.

I don't understand that every historian of recognized standing who has written in connection with the fur trade through

the western country, has given the Chicago-Desplaines and the portage between them as one of the routes used by fur traders. The references which I have seen have spoken of the Chicago portage. They have spoken of it in connection with the fur trade in a case or two which I have cited. I have cited in my direct what authorities I had examined. As to whether I have given consideration to the authorities produced in connection with the testimony of the government as bearing upon the question of the use of the Chicago and the Desplaines, of this portage, in connection with the carrying on of the
3095 fur trade, will say that in addition to those which I mentioned on my direct I have examined in a cursory way, one or two others I have not completed my work upon.

As to whether I have reached any conclusion in my own mind as to whether that statement in the editorial in the St. Louis paper is correct, or not, the sentence which you read to me was "The French of Canada and of the valley of the Mississippi have communicated through this channel since the settlement of the country."

3096 Don't think there is anything more in that than that communication was through this general route.

Q. As a historical critic, would you without having made any specific investigation as to the correctness of that statement, reject it because in your judgment the statement as to the number of boats seen in St. Louis was erroneous?

Objection, witness has not in his direct testified that he rejected the statement as to the French having used that channel from earliest time.

3097 A. As to the truth of that statement I would have to make further investigation, to find out whether the French did use that route during the early periods. Drawing from my general knowledge, I would state that that portage had been used during the early periods.

Assuming that St. Louis was established in 1764, and that trade with reference to the fur business had continued between Canada and the country around St. Louis for 40 or 50 years after 1764, I would still adhere to my conclusion that the statement in the editorial as to the number of boats seen in St. Louis was erroneous.

Q. Assuming that trade had run from forty to forty-five years, how many boats a week would it have been necessary to have gone to St. Louis in order to make good the statement in that editorial?

Objected to on the ground that there is no foundation

suggested in the question—for how many boats a week to make good the statement in that editorial.

3098 Mr. WILKERSON. Yes, about there being thousands of boats seen in St. Louis.

Mr. SCOTT. Objected to, as there is no possibility of making that calculation because the statement is "thousands." How many thousands does not appear; therefore, while you have the forty years, you have not the thing to be divided.

The WITNESS (continuing): It would not be erroneous to use the plural if there were more than one thousand. What the editorial meant by thousands could not be stated on the mere use of the word.

3099 Drawing from my general knowledge I present these added reasons for my conclusion that the statement is erroneous: For a considerable part of the period from 1764 down, there is evidence which points out that what commerce was carried on by the fur traders centered at New Orleans. That after 1764 the particular territory of which we are speaking belonged to England. The French were west of the Mississippi and came over, going up the Ohio and Illinois, and all these rivers, gathering furs from Illinois and Wisconsin, and taking them back down the river, following the natural course of trade to New Orleans. How far they went up toward the lakes by way of the Illinois, I don't know. They gathered furs from all over the territory of Illinois and Wisconsin,—the general territory between the Alleghenies and the Mississippi, north of the Ohio.

3100 Think I could cite authorities that would bear me out. Du Pratz speaks of the fur trade before the British period, that is, before 1764.

Another reason trade did not go down the Illinois was that there were many Indian wars along that river from 1703 on down.

3101 As to whether I would say that the writer of the editorial would have been justified in making the statement thousands of boats had been seen at St. Louis, if for 40 years one boat a week came down from Lake Michigan over the route which the writer of the editorial says they came, from 1764 down would say that would be over two thousand, or "thousands." In connection with this editorial, I refer to a letter written by Senator Benton in the Niles Register,

3102 which I cited to point out that Benton claimed to be the author of the editorial. There is nothing in the letter to indicate that he would modify his earlier statement; he

simply writes to the Chicago convention and gives his attitude toward western improvements and toward this particular one.

3103 On page 309 of the Niles Register, he says (reading):

"The junction of the two great systems of waters which occupy so much of our country—the northern lakes on the one hand, and the Mississippi river and its branches on the other—appeared to me to be an object of that character, and Chicago the proper point for effecting the union; and nearly thirty years ago I wrote and published articles in a St. Louis newspaper in favor of that object, indicated, and, almost accomplished by nature herself, and waiting from man but little to complete it: Articles in the St. Louis Enquirer, of April 1819, express the opinions which I then entertained, and the 'Report' of that period, published in the same paper to the Secretary of War, by Messrs. Graham and Phillips, in favor of that canal (and which 'Report' I wrote), was probably the first formal communication upon authentic data, in favor of the Chicago canal."

I cite this as evidence that he said he wrote it. I don't know that I drew the conclusion that he did write it.

Q. I call your attention to the fact that the article in the St. Louis Enquirer there referred to was in April, 1819, and that the preface to the book, Darby's Tour, in which the editorial is found, is under date of January 4, 1819.

3104 Objection, it plainly appears from the article there referred to, that he refers to articles, and not to a specific article as having been written by him.

Mr. WILKINSON. I object to the objection on the ground that it in the guise of an objection is a suggestion to the witness, on the answer to the point on which he is being examined, as the witness had read the article into the record, and the cross-examiner was testing the witness on his competency to pronounce himself a critic of historical matter.

3105 The WITNESS (continuing). I would not say from this letter given here that it is positive proof that he wrote the letter. I simply point out that Benton claims that he wrote the letter. If not that particular letter, he claims to have expressed himself in 1819 in favor of western improvement. I do not claim that he wrote this particular editorial. The letter states he was in favor of western improvements, and had committed himself as to them early in that period.

I understand that Benton was the editor of the paper at that time.

3106 There may be some correct statements; did not attempt to say the editorial was full of incorrect statements, I would like to have before me the editorial and my direct evidence upon it.

3107 As I recall my conclusions, they were that some of the statements were based upon facts, stated as facts, which I did not think could have been facts. When I said in my direct that he stated as facts what could not possibly be true I had in mind only the expression about thousands of boats having passed over the route. It is still my conclusion that that could not possibly be true.

3108 When I said the editorial should be classed as secondary authority, I had in mind that it was written by a man concerning whom I had no evidence that he had ever gone over this route. The term secondary authority is distinguished from primary sources among historical crit-
3109 ics. Secondary authority would be a book someone has written based upon other authorities—primary authorities—to illustrate,—Semple or McLaughlin's Life of Lewis Cass would be secondary authority. I don't put the editorial just criticised in the same class as Semple's history; they would be different kinds of authorities; any editorial would properly be called source material; papers are source material; but the point I had in mind there was that it was secondary authority on the point in question, because he had not been over the route; he must have been speaking from hearsay evidence.

3110 I didn't use the word "secondary" authority in the strict technical meaning attached to it by historical critics, but only with reference to the particular point in issue. For some things a given historical work may be primary and for others secondary; for instance, if I write an editorial and say I have experienced such a thing, that would be source material; if I say I had been told such a thing that would be merely hearsay evidence—there would be different weight attached to the different lines of evidence. You would analyze an editorial as you would any other authority. It would hardly be correct to say I put this editorial in the same class as Semple.

3111 I had no evidence that the writer of the editorial had been over that route. If there is other evidence that I

have not found that can be turned up which is good reliable authority, it would overthrow my conclusions.

Q. Assume that the man that wrote that editorial was in St. Louis a great deal; that he came in contact with the traders there; that he talked with those traders right along—

The WITNESS (interrupting): Which was probably true.

Q. —and with old settlers; that he knew the history and traditions of the city, as he passed back and forth across the country; would you still say that if he put down these facts with reference to the course of trade there, that it was a secondary source?

Objection, unless counsel specifies what he means by "passed back and forth across the country"; does not fix the period when he speaks with traders.

3112 A. It would be a secondary source in some respects while in some it might not. If he would specify what particular period he meant the reader could judge whether or not he was speaking from his own first hand knowledge. If he referred to his own experience and gave information of facts existing at that time, and there was no evidence to the contrary, it would be taken as an expression of conditions which the historian would hold until he could verify it.

3113 By primary sourse I do not mean only the statement of one who has seen the things to which he refers. There is a difference in primary sources. One contemporary might know of what he spoke; another might not. They would both be contemporaries, and in a general way classed as primary sources, since they both were contemporaries. A man who is a contemporary can speak of the conditions of which he knows, and which existed at the time, better than a man can 50 or 100 or 75 years after that; so that the contemporary would be classed as a primary source. If you found that two contemporary sources differed, it would be the task of the historian to find out whether one knew of the things of which he spoke and the other did not know.

3114 Any editorial which on its face does not show that the man saw the things about which he wrote would probably be first put under the general head of primary sources. Newspapers and editorials are put under primary sources.

3115 In any particular case, the historian will find out what value that authority has. Whether he would make the distinction between primary and secondary sources on the

particular point, or whether he would go to find out whether that authority could speak upon that point, or not, all historians would not follow the same line of procedure.

3117 I don't know whether a historian would test the particular author first, or whether he would make the general classification first.

Q. As to the statement of a distinguished man who was a contemporary with respect to the matters about which he wrote, would you as a historical critic, before rejecting it or any part of it, make any kind of an investigation for the purpose of determining whether he had the means of informing himself upon the subject about which he wrote?

3118 Objection; does not point out matters as to which he is said to have been a contemporary; counsel's examination indicates that boats are claimed to have been there at times not contemporary.

COUNSEL FOR COMPLAINANT. I refer to the statement of the witness on page 2992 of the transcript (Abst., 1206) where he says this was written by a man who had not passed over the route, I mean this trade route, at the time this editorial was written.

Objection; nothing in editorial to indicate that the passing over of this route by the writer was a matter treated of at all in the editorial. Hypothesis as to treatment of a contemporary fact has no basis in editorial.

A. I would try to take that into consideration along with other things that I would take into consideration.

3119 With respect to what I did in attempting to determine whether the man who wrote this editorial had the means of informing himself with respect to the matter stated in it, I tried to find out his attitude on this particular question. I don't know whether I tried to find the exact date when he came to St. Louis; he was a member of Congress from that district; lived there a good many years; presume he was in Chicago; don't know when he first came.

3120 Have no means of information as to what his method of travel to Chicago may have been. Attempted to find out all I could regarding the author's knowledge upon this subject; his attitude toward internal improvements; whether he would be directly interested in the building of the canal, or not; the purpose in writing such an editorial, and in regard to his attitude in the matter.

And in that respect, I have offered a life of Thomas Hart Benton.

Q. With regard to politics I am trying to find out what investigation you made for the purpose of determining his familiarity with the facts that he discussed in that editorial; not his motive to distort the facts, but his familiarity with the facts, so that if he were honest and told the truth he had the means of knowing the truth. What investigation did you make on that?

3121 A. Well, I had to take into consideration two or three things.

Q. I want to know just what you did, that is all.

Mr. SCOTT. He is starting to tell you and you interrupted him.

Mr. WILKERSON. No, that is the very thing he is avoiding telling me and has been for the last fifteen minutes.

Mr. SCOTT. That statement is not justified, and if counsel had not interrupted—

Mr. WILKERSON. Just read the question, and then I ask you to answer my question. I want to know just what you did.

A. That is what I was trying to answer you when I explained that I tried to find out what his motive was, and you interrupted me.

Mr. WILKERSON. I expressly said I didn't care about his motives. I wanted to know what you did to inform yourself with reference to his familiarity with these subjects.

A. I tried to find out in the first place what trade centered at St. Louis.

Q. I haven't asked you that, Mr. Witness; I asked you what you tried to find out about Benton—

A. That is one of the things.

Q. (Continuing.) And Benton's means of knowledge.

3122 Mr. SCOTT. I object to the interruption of the witness' answer because the witness' answer is directly responsive to the question.

Mr. WILKERSON. I shall interrupt all I please when he evades—

Mr. SCOTT. You may, but I shall insist upon his going on with his answer just the same.

Mr. WILKERSON. I shall interrupt every time he attempts to evade questions and make a speech.

Mr. SCOTT. That statement is unjustified and unworthy of counsel; there has been no effort to make a speech here. The witness in answer to the question has taken what Mr. Alvord or any other historian would take, he has taken the known facts to check up whether or not the statements were true.

He has started to give what he considered the known facts to be, and when counsel asks him how he went about it to ascertain it, counsel has no right—he may have gone at it wrong—but he has no right to stop him from stating how he went about it.

Mr. WILKERSON. I will put another question.

Mr. SCOTT. I insist that he answer the question first. Read the question, and as far as he got with his answer.

Mr. WILKERSON. I withdraw the question.

Mr. SCOTT. You cannot withdraw the question when
3123 he is in the midst of an answer.

Mr. WILKERSON. Read the question then; we will let the record speak for itself as to whether or not the witness has been trying to evade answering this question, and as to how unworthy the relative comments of counsel have been.

Mr. SCOTT. I shall take great pleasure in reading that when we get to the trial of this case. Read the question to the witness, and then continue with your answer.

(Record read as follows: "Q. I expressly said I did not care about his motives. I wanted to know what you did to inform yourself with reference to his familiarity with the subject. A. I tried to find out in the first place what trade centered at St. Louis"—)

Mr. SCOTT. Now go on with your answer to that question.

Mr. WILKERSON. I trust in view of the question as read, counsel will be fair enough to appreciate the situation. Go on.

Mr. SCOTT. I will leave the question of the fairness of counsel for the court. Go on, Mr. Lee.

A. I had stated that I had tried to find out what trade did center at St. Louis at the time of which he wrote. Getting all the information I could on that point I tried to find out the different avenues from which that trade came.
3124 I made an effort, too, to find out how much of that trade came through the Illinois river; to find out whether there would be any possibility of a mistaken situation in drawing this conclusion as to the fact which he states that "Nay, thousands came down over this route," whether he would include trade that came from the Ohio river, and trade that came from the upper Mississippi.

Mr. WILKERSON. Q. Have you finished?

A. And I found that—and I give this only from my memory, because I have not got my notes before me—that of the total trade that came to St. Louis there was only a por-

tion of it that came down the Illinois river. Some came by the Mississippi river and some came by the Ohio river.

Q. Have you finished?

A. That would be one of the means that I took to find out what his actual knowledge was.

Q. Now, do you understand that that is an answer to my inquiry as to what you did in order to inform yourself upon the subject as to what means Benton had for knowing about this trade about which we have been talking? You have told me what you did, what you looked into about the trade; I want to know whether you found out what means Benton had for knowing about this trade?

A. None other than that I knew he lived in St. Louis
3125 and that he was writing this paper and would know of things in general; but that he would know of any specific facts I had no information in regard to that. Mr. Wilkerson, I would say that I have tried to answer your question fairly; I have not tried to evade it; I have tried to show you just what I have done.

Did not try to find out whether there were any men living in St. Louis who would know about this route. Took the better line of evidence to find out not what trade wholly centered at St. Louis, but what could possibly have gone over this route.

Made no specific examination of Pierre Choteau, a trader who lived in St. Louis at that time. Seems to me I remember the name.

3126 Seems to me I have heard of Pierre Menard; made no special examination with regard to him. He may have been the first lieutenant governor of Illinois, I don't know; and an extensive trader. I don't know that I went back to find out and examine as carefully, the trade that went over this route at a much earlier period. If it did go down over an earlier period, Benton could not have spoken with the degree of accuracy that he could of contemporary times if he had been attempting to speak accurately of conditions.

3127 I did take into consideration the benefit that would come to the people who lived in St. Louis. Did not consider trade conditions in St. Louis so much as I considered possible trade conditions that would pass over this route; the authorities on this I have cited; they are in the record.

3128 I know of the Mackinaw Fur Company, the Southwest Fur Company, or the American Fur Company, but have made no extensive investigation of them. They traded over